

## SEQUENCE LISTING

&lt;110&gt; Brachmann, Rainer

&lt;120&gt; ENGINEERED OPEN READING FRAME FOR P53

&lt;130&gt; 004255.00008

&lt;160&gt; 71

&lt;170&gt; FastSEQ for Windows Version 4.0

&lt;210&gt; 1

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 1

|            |            |             |             |             |             |      |
|------------|------------|-------------|-------------|-------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgctc | gaaccacctc  | tgagtcagga  | aacctttttca | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac  | gttctgtccc  | cattgcctag  | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt  | gaacaatggt  | tcactgaaga  | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccaccggttg  | ccccagcacc  | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc  | tgccctctgt  | catcttctgt  | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt  | ctgggcttct  | tgcattctgg  | aactgccaag  | 360  |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact  | cgcggaagacc | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt  | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg  | gaggctcgta  | gacgctgtcc  | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt  | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggg  | ggtgccatat  | 660  |
| gagccaccag | aagtgggtc  | tgactgcacc  | accatccact  | acaactatat  | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcgggccg | atcctgacca  | tcatactct   | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt  | gagggtgcgtg | tttggtgcatg | cccggggccgc | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca  | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca  | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg  | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa  | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagctctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct  | gactcagact  | ga          |             | 1182 |

&lt;210&gt; 2

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 2

|            |            |             |            |            |             |     |
|------------|------------|-------------|------------|------------|-------------|-----|
| atggaagaac | cacagtcaga | tcctagcgctc | gaaccacccc | tgagtcagga | aacctttttca | 60  |
| gatctgtgga | agcttcttcc | tgaaaacaac  | gttctgtccc | cattgcctag | tcaagcaatg  | 120 |
| gatgatttga | tgctgagccc | agacgatatt  | gaacaatggt | tcactgagga | tccaggccca  | 180 |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccaccggttg | ccccagcacc | agcagctcct  | 240 |
| acaccggcgg | ccccagctcc | ggccccatcc  | tgccctctgt | catcttctgt | cccttcccag  | 300 |
| aaaacctacc | agggcagcta | cggtttccgt  | ctgggcttct | tgcattctgg | aactgccaag  | 360 |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt | tttgccaact | cgcggaagacc | 420 |
| tgcccagtc  | aactgtgggt | cgactccacc  | cctccacctg | gtacacgtgt | ccgcgcaatg  | 480 |
| gccatctaca | agcagagcca | gcacatgacg  | gaggctcgta | gacgctgtcc | acaccatgag  | 540 |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcatc | ttatccgagt | ggaaggtaac  | 600 |

## 433480\_1

|             |            |            |             |             |            |      |
|-------------|------------|------------|-------------|-------------|------------|------|
| ctacgcgtgg  | agtatctaga | tgaccgcaac | acttttgcac  | acagtgtggt  | ggtgccatat | 660  |
| gagccaccag  | aagttggctc | tgactgcacc | accatccact  | acaactatat  | gtgtaacagt | 720  |
| tcattgcatgg | gcggcatgaa | ccggcggccg | atcctgacca  | tcattcactct | cgaggattcc | 780  |
| tcaggtaatc  | tcctaggacg | gaattccttt | gaggtgcgtg  | tttgtgcatg  | cccgggccgc | 840  |
| gatcgccgga  | ccgaagagga | gaatctccgg | aagaaagggtg | agcctcacca  | cgagctgcca | 900  |
| ccaggaagca  | ctaagcgagc | actgccaac  | aacaccagca  | gttctccaca  | gccaaagaag | 960  |
| aaacctttgg  | acggagaata | tttcaccctt | cagatccgtg  | gccgtgagcg  | gttcgagatg | 1020 |
| ttccgagagc  | tgaatgaggg | cttagaactt | aaggatgccc  | aggctggtaa  | ggagccagga | 1080 |
| ggcagccgtg  | ctcatagcag | ccacctgaag | tccaaaaagg  | gtcagtctac  | ctcccgccat | 1140 |
| aaaaaactga  | gttcaagac  | cgaaggctct | gactcagact  | ga          |            | 1182 |

&lt;210&gt; 3

&lt;211&gt; 1181

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 3

|             |            |             |             |             |            |      |
|-------------|------------|-------------|-------------|-------------|------------|------|
| atggaagaac  | cacagtcaga | tcctagcgctc | gaaccacccc  | tgagtcagga  | aaccttttca | 60   |
| gatctgtgga  | agcttcttcc | tgaaaacaac  | gttctgtccc  | cattgcctag  | tcaagcaatg | 120  |
| gatgatttga  | tgctgagccc | agacgatatt  | gaacaatggt  | tcactgagga  | tccaggccca | 180  |
| gatgaagctc  | cacgaatgcc | agaggccgct  | ccaccggttg  | ccccagcacc  | agcagctcct | 240  |
| acaccggcgg  | ccccagctcc | ggccccatcc  | tgccctctgt  | catcttctgt  | cccttcccag | 300  |
| aaaacctacc  | agggcagcta | cggtttccgt  | ctgggcttct  | tgatttcttg  | aactgccaag | 360  |
| tctgttactt  | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact  | cgcaagacc  | 420  |
| tgcccagctc  | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt  | ccgcgcaatg | 480  |
| gccatctaca  | agcagagcca | gcacatgacg  | gaggtcgtag  | gacgtgtcc   | acaccatgag | 540  |
| cgctgctcag  | attctgatgg | tctggcgcca  | ccacagcatt  | ttatccgagt  | ggaaggtaac | 600  |
| ctacgcgtgg  | agtatctaga | tgaccgcaac  | acttttgcac  | acagtgtggt  | ggtgccatat | 660  |
| gagccaccag  | aagttggctc | tgactgcacc  | accatccact  | acaactatat  | gtgtaacagt | 720  |
| tcattgcatgg | gcggcatgaa | ccggcggccg  | atcctgacca  | tcattcactct | cgaggattcc | 780  |
| tcaggtaatc  | tcctaggacg | gaattccttt  | gaggtgcgtg  | tttgtgcatg  | cccgggccgc | 840  |
| gatcgccgga  | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca  | cgagctgcca | 900  |
| ccaggaagca  | ctaagcgagc | actgccaac   | aacaccagct  | cttctccaca  | gccaaagaag | 960  |
| aaacctttgg  | acggagaata | tttcaccctg  | cagatccgtg  | gccgtgagcg  | gttcgagatg | 1020 |
| ttccgagagc  | tgaatgaggg | cttagaactt  | aaggatgccc  | aggctggtaa  | ggagccagga | 1080 |
| ggcagccggg  | cccattcgtc | tcacctgaag  | tccaaaaagg  | gtcagtctac  | tagtcgccat | 1140 |
| aaaaaactga  | gttcaagacc | gaaggctcct  | actcagactg  | a           |            | 1181 |

&lt;210&gt; 4

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 4

|             |            |             |            |             |            |     |
|-------------|------------|-------------|------------|-------------|------------|-----|
| atggaagaac  | cacagtcaga | tcctagcgctc | gaaccacctc | tgagtcagga  | aaccttttca | 60  |
| gacctgtgga  | aattgtcttc | tgaaaacaac  | gttctgtccc | cattgcctag  | tcaagcaatg | 120 |
| gatgatttga  | tgctgtcccc | agacgatatt  | gaacaatggt | tcactgaaga  | tccaggccca | 180 |
| gatgaagctc  | cacgaatgcc | agaggccgct  | ccaccggttg | ccccagcacc  | agcagctcct | 240 |
| acaccggcgg  | ccccagctcc | ggccccatcc  | tgccctctgt | catcttctgt  | cccttcccag | 300 |
| aaaacctacc  | agggcagcta | cggtttccgt  | ctgggcttct | tgatttcttg  | aactgccaag | 360 |
| tctgttactt  | gtacgtactc | tccagccctt  | aacaagatgt | tttgccaact  | cgcaagacc  | 420 |
| tgcccagctc  | aactgtgggt | cgactccacc  | cctccacctg | gtacacgtgt  | ccgcgcaatg | 480 |
| gccatctaca  | agcagagcca | gcacatgacg  | gaggtcgtag | gtcactgtcc  | acaccatgag | 540 |
| cgctgctcag  | attctgatgg | tctggcgcca  | ccacagcatt | ttatccgagt  | ggaaggtaac | 600 |
| ctacgcgtgg  | agtatctaga | tgaccgcaac  | acttttgcac | acagtgtggt  | ggtgccatat | 660 |
| gagccaccag  | aagttggctc | tgactgcacc  | accatccact | acaactatat  | gtgtaacagt | 720 |
| tcattgcatgg | gcggcatgaa | ccggcggccg  | atcctgacca | tcattcactct | cgaggattcc | 780 |

## 433480\_1

|            |            |            |            |            |            |      |
|------------|------------|------------|------------|------------|------------|------|
| tcaggtaatc | tcctaggacg | gaattccttt | gaggtgctg  | tttgtgcatg | cccgggccgc | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg | aagaaaagg  | agcctcacca | cgagctgcca | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac | aacaccagca | gttctccaca | gccaaagaag | 960  |
| aaaccttttg | acggagaata | tttcaccctt | cagatccgtg | gccgtgagcg | gttcgagatg | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt | aaggatgccc | aggctggtaa | ggagccagga | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag | tccaaaaagg | gtcagtctac | ctcccgccat | 1140 |
| aaaaactga  | tgttcaagac | cgaaggctct | gactcagact | ga         |            | 1182 |

&lt;210&gt; 5

&lt;211&gt; 1181

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 5

|             |            |            |            |            |             |      |
|-------------|------------|------------|------------|------------|-------------|------|
| tggaagaacc  | acagtcagat | cctagcgctc | aaccacctct | gagtcaggaa | accttttcag  | 60   |
| acctgtggaa  | attgcttcct | gaaaacaacg | ttctgtcccc | attgcctagt | caagcaatgg  | 120  |
| atgatttgat  | gctgtcccca | gacgatattg | aacaatgggt | cactgaagat | ccaggcccag  | 180  |
| atgaagctcc  | acgaatgcc  | gaggccgctc | caccgggttg | cccagcacca | gcagctccta  | 240  |
| caccggcggc  | cccagctccg | gccccatcct | ggcctctgtc | atcttctgtc | ccttcccaga  | 300  |
| aaacctacca  | gggcagctac | ggtttccgct | tgggcttctt | gcattctgga | actgccaaagt | 360  |
| ctgttacttg  | tacgtactct | ccagccctta | acaagatgtt | ttgccaaact | gcgaagacct  | 420  |
| gcccagctcca | actgtgggtc | gactccaccc | ctccaccttg | tacacgtgtc | cgcgcaatgg  | 480  |
| ccatctacaa  | gcagagccag | cacatgacgg | aggctcgtag | acgctgtcca | caccatgagc  | 540  |
| gctgctcaga  | ttctgatggt | ctggcgccac | cacagcatct | tatccgagtg | gaaggtaacc  | 600  |
| tacgcgtgga  | gtatctagat | gaccgcaaca | cttttcgaca | cagtgtgggt | gtgccatatg  | 660  |
| agccaccaga  | agttggctct | gactgcacca | ccatccacta | caactatatg | tgtaacagtt  | 720  |
| catgcatggg  | cggcatgaac | cagcggccga | tcctgaccat | catcactctc | gaggattcct  | 780  |
| caggtaatct  | cctaggacgg | aatttccttg | agggtcggtg | tttgtgcatg | ccgggccgcg  | 840  |
| atcgccggac  | cgaagaggag | aatctccgga | agaaagggtg | gcctcaccac | gagctgccac  | 900  |
| caggaagcac  | taagcgagca | ctgccaaaca | acaccagcag | ttctccacag | ccaaagaaga  | 960  |
| aaacctttgga | cggagaatat | ttcacccttc | agatccgtgg | ccgtgagcgg | ttcgagatgt  | 1020 |
| tccgagagct  | gaatgaggcc | ttagaactta | aggatgcccc | ggctggtaag | gagccaggag  | 1080 |
| gcagccgtgc  | tcatagcagc | cacctgaagt | ccaaaaaggg | tcagtctacc | tcccgccata  | 1140 |
| aaaaactgat  | gttcaagacc | gaaggctcct | actcagactg | a          |             | 1181 |

&lt;210&gt; 6

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 6

|            |            |            |             |            |             |     |
|------------|------------|------------|-------------|------------|-------------|-----|
| atggaagaac | cacagtcaga | tcctagcgct | gaaccacctc  | tgagtcagga | aaccttttca  | 60  |
| gacctgtgga | aattgcttcc | tgaaaacaac | gttctgtccc  | cattgcctag | tcaagcaatg  | 120 |
| gatgatttga | tgctgtcccc | agacgatatt | gaacaatgg   | tcactgaaga | tccaggccca  | 180 |
| gatgaagctc | cacgaatgcc | agaggccgct | ccaccgggtg  | cccagcacc  | agcagctcct  | 240 |
| acaccggcgg | ccccagctcc | ggccccatcc | tggcctctgt  | catcttctgt | cccttcccag  | 300 |
| aaaacctacc | agggcagcta | cggtttccgt | ctgggcttct  | tgcatctctg | aactgccaa   | 360 |
| tctgttactt | gtactgtact | tccagccctt | aacaagatgt  | tttgccaa   | cgcggaagacc | 420 |
| tgcccagctc | aactgtgggt | cgactccacc | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480 |
| gccatctaca | agcagagcca | gcacatgacg | gaggtcgtag  | gacgctgtcc | acaccatgag  | 540 |
| cgctgctcag | attctgatgg | tctggcgcca | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600 |
| ctacgcgtgg | agtatctaga | tgaccgcaac | acttttctgac | acagtgtggt | ggtgccatat  | 660 |
| gagccaccag | aagttggctc | tgactgcacc | accatccact  | acaactatat | gtgtaacagt  | 720 |
| tcatgcatgg | gcggcatgaa | ccggcgggcg | atcctgacca  | tcactactct | cgaggattcc  | 780 |
| tcaggtaatc | tcctaggacg | gaattccttt | gaggtgcacg  | tttgtgcatg | cccgggccgc  | 840 |
| gatcgccgga | ccgaagagga | gaatctccgg | aagaaagggt  | agcctcacca | cgagctgcca  | 900 |
| ccaggaagca | ctaagcgagc | actgccaaac | aacaccagca  | gttctccaca | gccaaagaag  | 960 |

## 433480\_1

|            |            |            |            |            |            |      |
|------------|------------|------------|------------|------------|------------|------|
| aaaccttttg | acggagaata | tttcaccctt | cagatccgtg | gccgtgagcg | gttcgagatg | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt | aaggatgccc | aggctggtaa | ggagccagga | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag | tccaaaaagg | gtcagtctac | ctcccgccat | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct | gactcagact | ga         |            | 1182 |

&lt;210&gt; 7

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 7

|            |            |            |            |            |            |      |
|------------|------------|------------|------------|------------|------------|------|
| atggaagaac | cacagtcaga | tcctagcgct | gaaccacctc | tgagtcagga | aaccttttca | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac | gttctgtccc | cattgcctag | tcaagcaatg | 120  |
| gatgatttga | tgctgtcccc | agacgatatt | gaacaatggg | tactgaaga  | tccaggccca | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct | ccaccggttg | ccccagcacc | agcagctcct | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc | tgacctctgt | catcttctgt | cccttcccag | 300  |
| aaaacctacc | agggcagcta | cgggtttccg | ctgggcttct | tgatttctgg | aactgccaag | 360  |
| tctgttactt | gtacgtactc | tccagccctt | aacaagatgt | tttgccaact | cgcaagacc  | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc | cctccacctg | gtacacgtgt | ccgcgcaatg | 480  |
| gccatctaca | agcagagcca | gcacatgacg | gagggtcgta | gacgtgtcc  | acaccatgag | 540  |
| cgctgctcag | attctgatgg | tctggcgcca | ccacagcacc | ttatccgagt | ggaaggtaac | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac | acttttcgac | acagtgtggg | ggtgccatat | 660  |
| gagccaccag | aagttagctc | tgactgcacc | accatccact | acaactatat | gtgtaacagt | 720  |
| tcattgcatg | gcggcatgaa | ctggcgcccg | atcctgacca | tcattactct | cgaggattcc | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt | gagggtcggt | tttgtgcatg | cccgggccgc | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg | aagaaagggt | agcctcacca | cgagctgcca | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac | aacaccagca | gttctccaca | gccaaagaag | 960  |
| aaaccttttg | acggagaata | tttcaccctt | cagatccgtg | gccgtgagcg | gttcgagatg | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt | aaggatgccc | aggctggtaa | ggagccagga | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag | tccaaaaagg | gtcagtctac | ctcccgccat | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct | gactcagact | ga         |            | 1182 |

&lt;210&gt; 8

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 8

|            |            |            |            |            |            |      |
|------------|------------|------------|------------|------------|------------|------|
| atggaagaac | cacagtcaga | tcctagcgct | gaaccacctc | tgagtcagga | aaccttttca | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac | gttctgtccc | cattgcctag | tcaagcaatg | 120  |
| gatgatttga | tgctgtcccc | agacgatatt | gaacaatggg | tactgaaga  | tccaggccca | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct | ccaccggttg | ccccagcacc | agcagctcct | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc | tgacctctgt | catcttctgt | cccttcccag | 300  |
| aaaacctacc | agggcagcta | cgggtttccg | ctgggcttct | tgatttctgg | aactgccaag | 360  |
| tctgttactt | gtacgtactc | tccagccctt | aacaagatgt | tttgccaact | cgcaagacc  | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc | cctccacctg | gtacacgtgt | ccgcgcaatg | 480  |
| gccatctaca | agcagagcca | gcacatgacg | gagggtcgta | gacgtgtcc  | acaccatgag | 540  |
| cgctgctcag | attctgatgg | tctggcgcca | ccacagcacc | ttatccgagt | ggaaggtaac | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac | acttttcgac | acagtgtggg | ggtgccatat | 660  |
| gagccaccag | aagttagctc | tgactgcacc | accatccact | acaactatat | gtgtaacagt | 720  |
| tcattgcatg | gcggcatgaa | ccggcgcccg | atcctgacca | tcattactct | cgaggattcc | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt | gagggtgtgg | tttgtgcatg | cccgggccgc | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg | aagaaagggt | agcctcacca | cgagctgcca | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac | aacaccagca | gttctccaca | gccaaagaag | 960  |
| aaaccttttg | acggagaata | tttcaccctt | cagatccgtg | gccgtgagcg | gttcgagatg | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt | aaggatgccc | aggctggtaa | ggagccagga | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag | tccaaaaagg | gtcagtctac | ctcccgccat | 1140 |

aaaaaactga tgttcaagac cgaaggctct gactcagact ga 1182

<210> 9

<211> 1182

<212> DNA

<213> Artificial Sequence

<220>

<223> Produced by genetic engineering

<400> 9

|            |            |             |             |            |            |      |
|------------|------------|-------------|-------------|------------|------------|------|
| atggaagaac | cacagtcaga | tcctagcgctc | gaaccacctc  | tgagtcagga | aaccttttca | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac  | gttctgtccc  | cattgcctag | tcaagcaatg | 120  |
| gatgatttga | tgctgtcccc | agacgatatt  | gaacaatggt  | tactgaaga  | tccaggccca | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccaccggttg  | cccagcacc  | agcagctcct | 240  |
| acaccggcgg | cccagctcc  | ggccccatcc  | tggcctctgt  | catcttctgt | cccttcccag | 300  |
| aaaacctacc | agggcagcta | cggtttccgt  | ctgggcttct  | tgcattctgg | aactgccaag | 360  |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact | cgcgaagacc | 420  |
| tgcccagttc | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt | ccgcgcaatg | 480  |
| gccatctaca | agcagagcca | gcacatgacg  | gaggtcgtag  | gacgctgtcc | acaccatgag | 540  |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt | ggaaggtaac | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttctgac | acagtgtggt | ggtgccatat | 660  |
| gagccaccag | aagttggctc | tgactgcacc  | accatccact  | acaactatat | gtgtaacagt | 720  |
| tcatgcattg | gcggcatgaa | ccggcgcccg  | atcctgacca  | tcatactct  | cgaggattcc | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt  | gaggtgcgtg  | tttgtgcatg | cccgggccgc | 840  |
| gactggcgga | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca | cgagctgcca | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca | gccaaagaag | 960  |
| aaacctttgg | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg | gttcgagatg | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa | ggagccagga | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagtctac | ctcccgccat | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct  | gactcagact  | ga         |            | 1182 |

<210> 10

<211> 1182

<212> DNA

<213> Artificial Sequence

<220>

<223> Produced by genetic engineering

<400> 10

|            |            |             |             |            |            |      |
|------------|------------|-------------|-------------|------------|------------|------|
| atggaagaac | cacagtcaga | tcctagcgctc | gaaccacctc  | tgagtcagga | aaccttttca | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac  | gttctgtccc  | cattgcctag | tcaagcaatg | 120  |
| gatgatttga | tgctgtcccc | agacgatatt  | gaacaatggt  | tactgaaga  | tccaggccca | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccaccggttg  | cccagcacc  | agcagctcct | 240  |
| acaccggcgg | cccagctcc  | ggccccatcc  | tggcctctgt  | catcttctgt | cccttcccag | 300  |
| aaaacctacc | agggcagcta | cggtttccgt  | ctgggcttct  | tgcattctgg | aactgccaag | 360  |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact | cgcgaagacc | 420  |
| tgcccagttc | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt | ccgcgcaatg | 480  |
| gccatctaca | agcagagcca | gcacatgacg  | gaggtcgtag  | gacgctgtcc | acaccatgag | 540  |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt | ggaaggtaac | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttctgac | acagtgtggt | ggtgccatat | 660  |
| gagccaccag | aagttggctc | tgactgcacc  | accatccact  | acaactatat | gtgtaacagt | 720  |
| tcatgcattg | gcggcatgaa | ccgggtctccg | atcctgacca  | tcatactct  | cgaggattcc | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt  | gaggtgcgtg  | tttgtgcatg | cccgggccgc | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca | cgagctgcca | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca | gccaaagaag | 960  |
| aaacctttgg | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg | gttcgagatg | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa | ggagccagga | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagtctac | ctcccgccat | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct  | gactcagact  | ga         |            | 1182 |

<210> 11

<211> 1182  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Produced by genetic engineering

<400> 11  
 atggaagaac cacagtcaga tcctagcgct gaaccacctc tgagtcagga aacctttttca 60  
 gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120  
 gatgatttga tgctgtcccc agacgatatt gaacaatggg tcaactgaaga tccaggccca 180  
 gatgaagctc cacgaatgcc agaggccgct ccaccggttg cccagcacc agcagctcct 240  
 acaccggcgg cccagctcc ggcccaccc tgccctctgt catcttctgt cccttcccag 300  
 aaaacctaacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360  
 tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420  
 tgcccagtc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480  
 gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540  
 cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600  
 ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggg ggtgccatg 660  
 gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720  
 tcatgcatgg gctctatgaa ccggcgccg atcctgacca tcatcactct cgaggattcc 780  
 tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840  
 gatcgccgga ccgaagagga gaattctcgg aagaaagggt agcctcacca cgagctgcca 900  
 ccaggaagca ctaagcgagc actgccaacc aacaccagca gttctccaca gccaaagaag 960  
 aaacctttgg acggagaata tttcacctt cagatccgtg gccgtgagcg gttcgagatg 1020  
 ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080  
 ggagccggtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140  
 aaaaaactga tgttcaagac cgaaggctct gactcagact ga 1182

<210> 12  
 <211> 1182  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Produced by genetic engineering

<400> 12  
 atggaagaac cacagtcaga tcctagcgct gaaccacctc tgagtcagga aacctttttca 60  
 gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120  
 gatgatttga tgctgtcccc agacgatatt gaacaatggg tcaactgaaga tccaggccca 180  
 gatgaagctc cacgaatgcc agaggccgct ccaccggttg cccagcacc agcagctcct 240  
 acaccggcgg cccagctcc ggcccaccc tgccctctgt catcttctgt cccttcccag 300  
 aaaacctaacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360  
 tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420  
 tgcccagtc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480  
 gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540  
 cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600  
 ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggg ggtgccatg 660  
 gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720  
 tcatgcatgg gcgcatgaa ccggcgccg atcctgacca tcatcactct cgaggattcc 780  
 tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840  
 gatcgccgga ccgaagagga gaattctcgg aagaaagggt agcctcacca cgagctgcca 900  
 ccaggaagca ctaagcgagc actgccaacc aacaccagca gttctccaca gccaaagaag 960  
 aaacctttgg acggagaata tttcacctt cagatccgtg gccgtgagcg gttcgagatg 1020  
 ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080  
 ggagccggtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140  
 aaaaaactga tgttcaagac cgaaggctct gactcagact ga 1182

<210> 13  
 <211> 1182  
 <212> DNA  
 <213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 13

|            |            |             |             |             |             |      |
|------------|------------|-------------|-------------|-------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgctc | gaaccacctc  | tgagtcagga  | aacctttttca | 60   |
| gacctgtgga | aattgtcttc | tgaaaacaac  | gttctgtccc  | cattgcctag  | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt  | gaacaatggg  | tcactgaaga  | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccaccgggtg  | ccccagcacc  | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc  | tggcctctgt  | catcttctgt  | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt  | ctgggcttct  | tgcatctctg  | aactgccaag  | 360  |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact  | cgcgaagacc  | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt  | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg  | gaggctcgta  | gacgcttccc  | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt  | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggt  | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc  | accatccact  | acaactatat  | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcggccg  | atcctgacca  | tcactactct  | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt  | gagggtgcgtg | tttgtgcatg  | cccgggccgc  | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca  | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca  | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg  | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa  | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagttctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct  | gactcagact  | ga          |             | 1182 |

&lt;210&gt; 14

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 14

|            |            |             |             |             |             |      |
|------------|------------|-------------|-------------|-------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgctc | gaaccacctc  | tgagtcagga  | aacctttttca | 60   |
| gacctgtgga | aattgtcttc | tgaaaacaac  | gttctgtccc  | cattgcctag  | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt  | gaacaatggg  | tcactgaaga  | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccaccgggtg  | ccccagcacc  | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc  | tggcctctgt  | catcttctgt  | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt  | ctgggcttct  | tgcatctctg  | aactgccaag  | 360  |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact  | cgcgaagacc  | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgggt  | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg  | gaggctcgta  | gacgctgtcc  | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt  | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggt  | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc  | accatccact  | acaactatat  | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcggccg  | atcctgacca  | tcactactct  | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt  | gagggtgcgtg | tttgtgcatg  | cccgggccgc  | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca  | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca  | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg  | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa  | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagttctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct  | gactcagact  | ga          |             | 1182 |

&lt;210&gt; 15

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 15

|            |            |             |             |            |             |      |
|------------|------------|-------------|-------------|------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgtc  | gaaccacctc  | tgagtcagga | aaccttttca  | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac  | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt  | gaacaatggt  | tcactgaaga | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccaccggttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggcccccattc | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt  | ctgggcttct  | tgatttcttg | aactgccaag  | 360  |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact | cgcggaagacc | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg  | gaggctcgta  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcacc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggt | ggtgccatat  | 660  |
| gagccaccag | aagttagctc | tgactgcacc  | accatccact  | acaactacat | atgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcgcccg  | atcctgacca  | tcatactct  | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt  | gagggtgctg  | tttgtgcatg | cccgggccgc  | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct  | gactcagact  | ga         |             | 1182 |

&lt;210&gt; 16

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 16

|            |            |             |             |            |             |      |
|------------|------------|-------------|-------------|------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgtc  | gaaccacctc  | tgagtcagga | aaccttttca  | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac  | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt  | gaacaatggt  | tcactgaaga | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccaccggttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggcccccattc | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt  | ctgggcttct  | tgatttcttg | aactgccaag  | 360  |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact | cgcggaagacc | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg  | gaggctcgta  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcacc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggt | ggtgccatat  | 660  |
| gagccaccag | aagttagctc | tgactgcacc  | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcgcccg  | atcctgacca  | tcatactct  | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt  | gagggtgctg  | tttgtgcatg | cccgggccgc  | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct  | gactcagact  | ga         |             | 1182 |

&lt;210&gt; 17

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 17

|            |            |            |            |            |            |    |
|------------|------------|------------|------------|------------|------------|----|
| atggaagaac | cacagtcaga | tcctagcgtc | gaaccacctc | tgagtcagga | aaccttttca | 60 |
|------------|------------|------------|------------|------------|------------|----|



## 433480\_1

|             |            |             |             |            |             |      |
|-------------|------------|-------------|-------------|------------|-------------|------|
| gacctgtgga  | aattgcttcc | tgaaaacaac  | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga  | tgctgtcccc | agacgatatt  | gaacaatggg  | tcactgaaga | tccaggccca  | 180  |
| gatgaagctc  | cacgaatgcc | agaggccgct  | ccaccggttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg  | ccccagctcc | ggccccatcc  | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc  | agggcagcta | cggttttccgt | ctgggcttct  | tgcattctgg | aactgccaaag | 360  |
| tctgttactt  | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact | cgcggaagacc | 420  |
| tgcccagttc  | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca  | agcagagcca | gcacatgacg  | gaggtcgtac  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag  | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg  | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggt | ggtgccatat  | 660  |
| gagccaccag  | aagttggctc | tgactgcacc  | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcattgcatgg | gcggcatgaa | ccggcggccg  | atcctgacca  | tcatactct  | cgaggattcc  | 780  |
| tcaggtaatc  | tcctaggacg | gaattccttt  | gaggtgcgtg  | tttgtgcatg | cccgggccgc  | 840  |
| gatcgccgga  | ccaaggagga | gaatctccgg  | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca  | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg  | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc  | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg  | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga  | tgttcaagac | cgaaggctct  | gactcagact  | ga         |             | 1182 |

&lt;210&gt; 18

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 18

|             |            |             |             |            |             |      |
|-------------|------------|-------------|-------------|------------|-------------|------|
| atggaagaac  | cacagtcaga | tcctagcgct  | gaaccacctc  | tgagtcagga | aacctttttca | 60   |
| gacctgtgga  | aattgcttcc | tgaaaacaac  | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga  | tgctgtcccc | agacgatatt  | gaacaatggg  | tcactgaaga | tccaggccca  | 180  |
| gatgaagctc  | cacgaatgcc | agaggccgct  | ccaccggttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg  | ccccagctcc | ggccccatcc  | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc  | agggcagcta | cggttttccgt | ctgggcttct  | tgcattctgg | aactgccaaag | 360  |
| tctgttactt  | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact | cgcggaagacc | 420  |
| tgcccagttc  | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca  | agcagagcca | gcacatgacg  | gaggtcgtac  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag  | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg  | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggt | ggtgccatat  | 660  |
| gagccaccag  | aagttggctc | tgactgcacc  | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcattgcatgg | gagacatgaa | ccggcggccg  | atcctgacca  | tcatactct  | cgaggattcc  | 780  |
| tcaggtaatc  | tcctaggacg | gaattccttt  | gaggtgcgtg  | tttgtgcatg | cccgggccgc  | 840  |
| gatcgccgga  | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca  | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg  | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc  | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg  | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga  | tgttcaagac | cgaaggctct  | gactcagact  | ga         |             | 1182 |

&lt;210&gt; 19

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 19

|            |            |            |            |            |             |     |
|------------|------------|------------|------------|------------|-------------|-----|
| atggaagaac | cacagtcaga | tcctagcgct | gaaccacctc | tgagtcagga | aacctttttca | 60  |
| gacctgtgga | aattgcttcc | tgaaaacaac | gttctgtccc | cattgcctag | tcaagcaatg  | 120 |
| gatgatttga | tgctgtcccc | agacgatatt | gaacaatggg | tcactgaaga | tccaggccca  | 180 |
| gatgaagctc | cacgaatgcc | agaggccgct | ccaccggttg | ccccagcacc | agcagctcct  | 240 |

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|            |            |             |             |            |             |      |
|------------|------------|-------------|-------------|------------|-------------|------|
| acaccggcgg | ccccagctcc | ggccccatcc  | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt  | ctgggcttct  | tgcattctgg | aactgccaag  | 360  |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact | cgcggaagacc | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg  | gaggtcgtac  | gacgctgtcc | acaccgtgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggt | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc  | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcgggccg | atcctgacca  | tcatactct  | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt  | gaggtgcgtg  | tttgtgcatg | cccgggcccgc | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct  | gactcagact  | ga         |             | 1182 |

&lt;210&gt; 20

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 20

|            |            |             |             |            |             |      |
|------------|------------|-------------|-------------|------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgct  | gaaccacctc  | tgagtcagga | aaccttttca  | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac  | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt  | gaacaatggt  | tcactgaaga | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccaccggttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc  | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt  | ctgggcttct  | tgcattctgg | aactgccaag  | 360  |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact | cgcggaagacc | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctgca | agcagagcca | gcacatgacg  | gaggtcgtac  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggt | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc  | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcgggccg | atcctgacca  | tcatactct  | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt  | gaggtgcgtg  | tttgtgcatg | cccgggcccgc | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| tcaggaagca | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct  | gactcagact  | ga         |             | 1182 |

&lt;210&gt; 21

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 21

|            |            |            |            |            |             |     |
|------------|------------|------------|------------|------------|-------------|-----|
| atggaagaac | cacagtcaga | tcctagcgct | gaaccacctc | tgagtcagga | aaccttttca  | 60  |
| gacctgtgga | aattgcttcc | tgaaaacaac | gttctgtccc | cattgcctag | tcaagcaatg  | 120 |
| gatgatttga | tgctgtcccc | agacgatatt | gaacaatggt | tcactgaaga | tccaggccca  | 180 |
| gatgaagctc | cacgaatgcc | agaggccgct | ccaccggttg | ccccagcacc | agcagctcct  | 240 |
| acaccggcgg | ccccagctcc | ggccccatcc | tggcctctgt | catcttctgt | cccttcccag  | 300 |
| aaaacctacc | agggcagcta | cggtttccgt | ctgggcttct | tgcattctgg | aactgccaag  | 360 |
| tctgttactt | gtacgtactc | tccagccctt | aacaagatgt | tttgccaact | cgcggaagacc | 420 |

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|             |            |            |             |            |             |      |
|-------------|------------|------------|-------------|------------|-------------|------|
| tgcccagttcc | aactgtgggt | cgactccacc | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca  | agcagagcca | gcacatgacg | gaggtcgtac  | gacgtgttcc | acaccatgag  | 540  |
| cgctgctcag  | atttctgatg | tctggcgcca | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg  | agtgcctaga | tgaccgcaac | acttttcgac  | acagtgtggt | ggtgccatat  | 660  |
| gagccaccag  | aagttggctc | tgactgcacc | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcatgcatgg  | gcggcatgaa | ccggcggccg | atcctgacca  | tcatactct  | cgaggattcc  | 780  |
| tcaggtaatc  | tcctaggacg | gaattccttt | gaggtgcgtg  | tttgtgcatg | cccgggccgc  | 840  |
| gatcgccgga  | ccgaagagga | gaatctccgg | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca  | ctaagcgagc | actgccaaac | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg  | acggagaata | tttcaccctt | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc  | tgaatgaggc | cttagaactt | aaggatgccc  | aggctggtaa | ggagccaggga | 1080 |
| ggcagccgtg  | ctcatagcag | ccacctgaag | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga  | tgttcaagac | cgaaggctct | gactcagact  | ga         |             | 1182 |

&lt;210&gt; 22

&lt;211&gt; 1181

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 22

|             |            |             |             |            |            |      |
|-------------|------------|-------------|-------------|------------|------------|------|
| tggaagaacc  | acagtcagat | cctagcgctc  | aaccacctct  | gagtcaggaa | accttttcag | 60   |
| acctgtggaa  | attgcttcct | gaaaacaacg  | ttctgtcccc  | attgcctagt | caagcaatgg | 120  |
| atgatttgat  | gctgtcccca | gacgatattg  | aacaatggtt  | caactgaaga | ccaggcccag | 180  |
| atgaagctcc  | acgaatgccg | gaggccgctc  | caccggttgc  | cccagcacca | gcagctccta | 240  |
| caccggcggc  | ccagctcccg | gccccatcct  | ggcctctgtc  | atcttctgtc | ccttcccaga | 300  |
| aaacctacca  | gggcagctac | ggtttccgct  | tgggcttctt  | gcattctgga | actgccaagt | 360  |
| ctgttacttg  | tacgtactct | ccagccctta  | acaagatggt  | ttgccaactc | gcgaagacct | 420  |
| gcccagttcca | actgtgggtc | gactccaccc  | ctccaccttg  | tacacgtgtc | ctcgcgatgg | 480  |
| ccatctacaa  | gcagagccag | cacatgacgg  | aggctcgtac  | acgctgtcca | caccatgagc | 540  |
| gctgctcaga  | ttctgatggg | ctggcgccac  | cacagcatct  | tatccgagtg | gaaggtaacc | 600  |
| tacgcgtgga  | gtatctagat | gaccgcaaca  | cttttcgaca  | cagtgtgggt | gtgccatatg | 660  |
| agccaccaga  | agttggctct | gactgcacca  | ccatccacta  | caactatatg | tgtaacagtt | 720  |
| catgcatggg  | cggcatgaac | cggcggccga  | tcctgacctt  | catcactctc | gaggattcct | 780  |
| caggtaatct  | cctaggacgg | aattcctttg  | agggtcgtgt  | ttgtgcatgc | ccgggccgcg | 840  |
| atcgccggac  | cgaagaggag | aatctccgga  | agaaagggtga | gcctcaccac | gagctgccac | 900  |
| taggaagcac  | taagcgagca | ctgccaacaa  | acaccagcag  | ttctccacag | ccaaagaaga | 960  |
| aaacctttgga | cggagaatat | ttcacccttc  | agatccgtgg  | ccgtgagcgg | ttcgagatgt | 1020 |
| tccgagagct  | gaatgaggcc | ttagaactta  | aggatgccc   | ggctggtaag | gagccaggag | 1080 |
| gcagccgtgc  | tcatagcagc | cacctgaagt  | ccaaaaaggg  | tcagtctacc | tcccgcata  | 1140 |
| aaaaaactgat | gttcaagacc | gaagggtcctg | actcagactg  | a          |            | 1181 |

&lt;210&gt; 23

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 23

|             |            |            |            |             |            |     |
|-------------|------------|------------|------------|-------------|------------|-----|
| atggaagaac  | cacagtcaga | tcctagcgct | gaaccacctc | tgagtcaggga | aaccttttca | 60  |
| gacctgtgga  | aattgcttcc | tgaaaacaac | gttctgtccc | cattgcctag  | tcaagcaatg | 120 |
| gatgatttga  | tgctgtcccc | agacgatatt | gaacaatggt | tcactgaaga  | tccaggccca | 180 |
| gatgaagctc  | cacgaatgcc | agaggccgct | ccaccggttg | ccccagcacc  | agcagctcct | 240 |
| acaccggcgg  | ccccagctcc | ggccccatcc | tggcctctgt | catcttctgt  | cccttcccag | 300 |
| aaaacctacc  | aggcgagcta | cgggtttccg | ctgggcttct | tgcatcttgg  | aactgccaag | 360 |
| tctgttactt  | gtacgtactc | tccagccctt | aacaagatgt | tttgccaact  | cgcaagacc  | 420 |
| tgcccagttcc | aactgtgggt | cgactccacc | cctccacctg | gtacacgtgt  | ccgcgcaatg | 480 |
| gccatctaca  | agcagagcca | gcacatgacg | gaggtcgtac | gacgtgttcc  | acaccatgag | 540 |
| cgctgctcag  | atttctgatg | tctggcgcca | ccacagcatc | ttatccgagt  | ggaaggtaac | 600 |

## 433480\_1

|            |            |            |             |            |            |      |
|------------|------------|------------|-------------|------------|------------|------|
| ctacgcgtgg | agtatctaga | tgaccgcaac | acttttcgac  | acagtgtggt | ggtgccatat | 660  |
| gagccaccag | aagttggctc | tgactgcacc | accatccact  | acaactatat | gtgtaacagt | 720  |
| ttctgcatgg | gcggcatgaa | ccggcggccg | atcctgacca  | tcactactct | cgaggattcc | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt | gaggtgctg   | tttgtgcatg | cccgggccgc | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg | aagaaagggtg | agcctcacca | cgagctgcca | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac | aacaccagca  | gttctccaca | gccaaagaag | 960  |
| aaacctttgg | acggagaata | tttcaccctt | cagatccgtg  | gccgtgagcg | gttcgagatg | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt | aaggatgccc  | aggctggtaa | ggagccagga | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag | tccaaaaagg  | gtcagtctac | ctcccgccat | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct | gactcagact  | ga         |            | 1182 |

&lt;210&gt; 24

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 24

|            |            |            |             |            |             |      |
|------------|------------|------------|-------------|------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgct | gaaccacctc  | tgagtcagga | aaccttttca  | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt | gaacaatggt  | tcactgaaga | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct | ccaccggttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt | ctgggcttct  | tgcattctgg | aactgccaaag | 360  |
| tctgttactt | gtacgtactc | tccagccctt | aacaagatgt  | tttgccaact | cgcggaagacc | 420  |
| tgcccagctc | aactgtgggt | cgactccacc | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg | gaggtcgtac  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac | acttttcgac  | acagtgtggt | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc | accatccact  | gcaactatat | gtgtaacagt  | 720  |
| tcctgcatgg | gcggcatgaa | ccggcggccg | atcctgacca  | tcactactct | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt | gaggtgctg   | tttgtgcatg | cccgggccgc  | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct | gactcagact  | ga         |             | 1182 |

&lt;210&gt; 25

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 25

|            |            |            |            |            |             |     |
|------------|------------|------------|------------|------------|-------------|-----|
| atggaagaac | cacagtcaga | tcctagcgct | gaaccacctc | tgagtcagga | aaccttttca  | 60  |
| gacctgtgga | aattgcttcc | tgaaaacaac | gttctgtccc | cattgcctag | tcaagcaatg  | 120 |
| gatgatttga | tgctgtcccc | agacgatatt | gaacaatggt | tcactgaaga | tccaggccca  | 180 |
| gatgaagctc | cacgaatgcc | agaggccgct | ccaccggttg | ccccagcacc | agcagctcct  | 240 |
| acaccggcgg | ccccagctcc | ggccccatcc | tggcctctgt | catcttctgt | cccttcccag  | 300 |
| aaaacctacc | agggcagcta | cggtttccgt | ctgggcttct | tgcattctgg | aactgccaaag | 360 |
| tctgttactt | gtacgtactc | tccagccctt | aacaagatgt | tttgccaact | cgcggaagacc | 420 |
| tgcccagctc | aactgtgggt | cgactccacc | cctccacctg | gtacacgtgt | ccgcgcaatg  | 480 |
| gccatctaca | agcagagcca | gcacatgacg | gaggtcgtac | gacgctgtcc | acaccatgag  | 540 |
| cgctgctcag | attctgatgg | tctggcgcca | ccacagcatc | ttatccgagt | ggaaggtaac  | 600 |
| ctacgcgtgg | agtatctaga | tgaccgcaac | acttttcgac | acagtgtggt | ggtgccatat  | 660 |
| gagccaccag | aagttggctc | tgactgcacc | accatccact | acaactatat | gtgtaacagt  | 720 |
| tcctgcatgg | gctgcatgaa | ccggcggccg | atcctgacca | tcactactct | cgaggattcc  | 780 |

## 433480\_1

|            |            |            |             |            |            |      |
|------------|------------|------------|-------------|------------|------------|------|
| tcaggtaatc | tcctaggacg | gaattccttt | gaggtgctg   | tttgtgcatg | cccgggccgc | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg | aagaaagggtg | agcctcacca | cgagctgcca | 900  |
| ccaggaagca | ctaagcgagc | actgccaac  | aacaccagca  | gttctccaca | gccaaagaag | 960  |
| aaacctttgg | acggagaata | tttcaccctt | cagatccgtg  | gccgtgagcg | gttcgagatg | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt | aaggatgccc  | aggctggtaa | ggagccagga | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag | tccaaaaagg  | gtcagtctac | ctcccgccat | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct | gactcagact  | ga         |            | 1182 |

&lt;210&gt; 26

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 26

|            |            |             |             |            |             |      |
|------------|------------|-------------|-------------|------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgctc | gaaccacctc  | tgagtcagga | aaccttttca  | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac  | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt  | gaacaatggt  | tcactgaaga | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccaccggttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc  | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt  | ctgggcttct  | tgcatctctg | aactgccaag  | 360  |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact | cgcggaagacc | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt | gcacgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg  | gaggtcgtag  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggt | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc  | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcgcccg  | atcctgacca  | tcatactct  | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt  | gaggtgctg   | tttgtgcatg | cccgggccgc  | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaac   | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct  | gactcagact  | ga         |             | 1182 |

&lt;210&gt; 27

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 27

|            |            |             |             |            |             |     |
|------------|------------|-------------|-------------|------------|-------------|-----|
| atggaagaac | cacagtcaga | tcctagcgctc | gaaccacctc  | tgagtcagga | aaccttttca  | 60  |
| gacctgtgga | aattgcttcc | tgaaaacaac  | gttctgtccc  | cattgcctag | tcaagcaatg  | 120 |
| gatgatttga | tgctgtcccc | agacgatatt  | gaacaatggt  | tcactgaaga | tccaggccca  | 180 |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccaccggttg  | ccccagcacc | agcagctcct  | 240 |
| acaccggcgg | ccccagctcc | ggccccatcc  | tggcctctgt  | catcttctgt | cccttcccag  | 300 |
| aaaacctacc | agggcagcta | cggtttccgt  | ctgggcttct  | tgcatctctg | aactgccaag  | 360 |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact | cgcggaagacc | 420 |
| tgcccagtc  | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480 |
| gccatctaca | agcagagcca | gcacatgacg  | gaggtcgtag  | gacgctgtcc | acaccatgag  | 540 |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600 |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggt | ggtgccatat  | 660 |
| gagccaccag | aagttggctc | tgactgcacc  | accatccact  | acaactatat | gtgtaacagt  | 720 |
| tcatgcatgg | gcggcatgaa | cctgaggccg  | atcctgacca  | tcatactct  | cgaggattcc  | 780 |
| tcaggtaatc | tcctaggacg | gaattccttt  | gaggtgctg   | tttgtgcatg | cccgggccgc  | 840 |
| gatcgccgga | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca | cgagctgcca  | 900 |
| ccaggaagca | ctaagcgagc | actgccaac   | aacaccagca  | gttctccaca | gccaaagaag  | 960 |

## 433480\_1

|            |            |            |            |            |            |      |
|------------|------------|------------|------------|------------|------------|------|
| aaaccttttg | acggagaata | tttcaccctt | cagatccgtg | gccgtgagcg | gttcgagatg | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt | aaggatgccc | aggctggtaa | ggagccagga | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag | tccaaaaagg | gtcagtctac | ctcccgccat | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct | gactcagact | ga         |            | 1182 |

&lt;210&gt; 28

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 28

|            |            |            |             |            |             |      |
|------------|------------|------------|-------------|------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgct | gaaccacctc  | tgagtcagga | aacctttttca | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt | gaacaatggg  | tcactgaaga | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct | ccaccggttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc | tgccctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt | ctgggcttct  | tgcatctctg | aactgccaag  | 360  |
| tctgttactt | gtacgtactc | tccagccctt | aacaagatgt  | tttgccaact | cgcggaagacc | 420  |
| tgcccagctc | aactgtgggt | cgactccacc | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg | gaggtcgtac  | gacgctgtcc | acactacgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ttacgcgtgg | agtatctaga | tgaccgcaac | acttttcgac  | acagtgtggg | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcggccg | atcctgacca  | tcatactct  | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt | gaggtgcgtg  | tttgtgcatg | cccgggcccgc | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaacc | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaaccttttg | acggagaata | tttcaccctt | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct | gactcagact  | ga         |             | 1182 |

&lt;210&gt; 29

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 29

|            |            |            |             |            |             |      |
|------------|------------|------------|-------------|------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgct | gaaccacctc  | tgagtcagga | aacctttttca | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt | gaacaatggg  | tcactgaaga | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct | ccaccggttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc | tgccctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt | ctgggcttct  | tgcatctctg | aactgccaag  | 360  |
| tctgttactt | gtacgtactc | tccagccctt | aacaagatgt  | tttgccaact | cgcggaagacc | 420  |
| tgcccagctc | aactgtgggt | cgactccacc | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg | gaggtcgtac  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac | acttttcgac  | acagtgtggg | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcggccg | atcctgacca  | tcatactct  | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt | gaggtgcgtg  | tttgtgcatg | cccgggtacc  | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaacc | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaaccttttg | acggagaata | tttcaccctt | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |

aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 30

<211> 1182

<212> DNA

<213> Artificial Sequence

<220>

<223> Produced by genetic engineering

<400> 30

|            |             |             |             |            |             |      |
|------------|-------------|-------------|-------------|------------|-------------|------|
| atggaagaac | cacagtcaga  | tcctagcgct  | gaaccacctc  | tgagtcagga | aacctttttca | 60   |
| gacctgtgga | aattgcttcc  | tgaaaacaac  | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc  | agacgatatt  | gaacaatggg  | tcactgaaga | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc  | agaggccgct  | ccaccggttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc  | ggccccatcc  | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta  | cggtttccgt  | ctgggcttct  | tgcatctctg | aactgccaag  | 360  |
| tctgttactt | gtacgtactc  | tccagccctt  | aacaagatgt  | tttgccaact | cgcggaagacc | 420  |
| tgcccagtc  | aactgtgggt  | cgactccacg  | tccccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca  | gcacatgacg  | gaggtcgtac  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg  | tctggcgcca  | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga  | tgaccgcaac  | acttttcgac  | acagtgtggt | ggtgccatat  | 660  |
| gagccaccag | aagttggctc  | tgactgcacc  | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcgatgaa | ccggcgggccg | atcctgacca  | tcatcactct | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg  | gaattccttt  | gaggtgcgtg  | tttgtgcatg | cccgggccgc  | 840  |
| gatcgccgga | ccgaagagga  | gaatctccgg  | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc  | actgccaaac  | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg | acggagaata  | tttcaccctt  | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc  | cttagaactt  | aaggatgcc   | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag  | ccacctgaag  | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac  | cgaaggtcct  | gactcagact  | ga         |             | 1182 |

<210> 31

<211> 1182

<212> DNA

<213> Artificial Sequence

<220>

<223> Produced by genetic engineering

<400> 31

|            |             |             |             |            |             |      |
|------------|-------------|-------------|-------------|------------|-------------|------|
| atggaagaac | cacagtcaga  | tcctagcgct  | gaaccacctc  | tgagtcagga | aacctttttca | 60   |
| gacctgtgga | aattgcttcc  | tgaaaacaac  | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc  | agacgatatt  | gaacaatggg  | tcactgaaga | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc  | agaggccgct  | ccaccggttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc  | ggccccatcc  | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta  | cggtttccgt  | ctgggcttct  | tgcatctctg | aactgccaag  | 360  |
| tctgttactt | gtacgtactc  | tccagccctt  | aacaagatgt  | tttgccaact | cgcggaagacg | 420  |
| tacctcagtc | aactgtgggt  | cgactccacc  | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca  | gcacatgacg  | gaggtcgtac  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg  | tctggcgcca  | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga  | tgaccgcaac  | acttttcgac  | acagtgtggt | ggtgccatat  | 660  |
| gagccaccag | aagttggctc  | tgactgcacc  | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcgatgaa | ccggcgggccg | atcctgacca  | tcatcactct | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg  | gaattccttt  | gaggtgcgtg  | tttgtgcatg | cccgggccgc  | 840  |
| gatcgccgga | ccgaagagga  | gaatctccgg  | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc  | actgccaaac  | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg | acggagaata  | tttcaccctt  | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc  | cttagaactt  | aaggatgcc   | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag  | ccacctgaag  | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac  | cgaaggtcct  | gactcagact  | ga         |             | 1182 |

<210> 32

<211> 1182  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Produced by genetic engineering

<400> 32  
 atggaagaac cacagtcaga tcctagcgct gaaccacctc tgagtcagga aacctttttca 60  
 gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120  
 gatgatttga tgctgtcccc agacgatatt gaacaatggt tcaactgaaga tccaggccca 180  
 gatgaagctc cacgaatgcc agaggccgct ccaccggttg cccagcacc agcagctcct 240  
 acaccggcgg cccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300  
 aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360  
 tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420  
 tgcccagtc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480  
 gccatctaca agcagagcca gcacatgacg gaggtcgtag gacgctgtcc acaccatgag 540  
 cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600  
 ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660  
 gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720  
 tcatgcatgg gcggcatgaa ccggatgccg atcctgacca tcatcactct cgaggattcc 780  
 tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cccgggccgc 840  
 gatcgccgga ccgaagagga gaattctccg aagaaagggt agcctcacca cgagctgcca 900  
 ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960  
 aaacctttgg acggagaata ttaccctt cagatccgtg gccgtgagcg gttcgagatg 1020  
 ttccgagagc tgaatgaggc cttagaactt aaggatgcc aggttggtta ggagccagga 1080  
 ggagccggtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140  
 aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 33  
 <211> 1182  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Produced by genetic engineering

<400> 33  
 atggaagaac cacagtcaga tcctagcgct gaaccacctc tgagtcagga aacctttttca 60  
 gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120  
 gatgatttga tgctgtcccc agacgatatt gaacaatggt tcaactgaaga tccaggccca 180  
 gatgaagctc cacgaatgcc agaggccgct ccaccggttg cccagcacc agcagctcct 240  
 acaccggcgg cccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300  
 aaaacctacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360  
 tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420  
 tgcccagtc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480  
 gccatctaca agcagagcca gcacatgacg gaggtcgtag gacgctgtcc acaccatgag 540  
 cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600  
 ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggt ggtgccatat 660  
 gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720  
 tcatgcatgg gcggcatgaa ccggcgcccg atcctgacca tcatcactct cgaggattcc 780  
 tcaggtaatc tcctaggacg gaattccttt gaggtgcgtg tttgtgcatg cagcgccgc 840  
 gatcgccgga ccgaagagga gaattctccg aagaaagggt agcctcacca cgagctgcca 900  
 ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960  
 aaacctttgg acggagaata ttaccctt cagatccgtg gccgtgagcg gttcgagatg 1020  
 ttccgagagc tgaatgaggc cttagaactt aaggatgcc aggttggtta ggagccagga 1080  
 ggagccggtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140  
 aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 34  
 <211> 1182  
 <212> DNA  
 <213> Artificial Sequence



&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 34

|            |            |            |             |            |             |      |
|------------|------------|------------|-------------|------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgct | gaaccacctc  | tgagtcagga | aaccttttca  | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt | gaacaatggg  | tactgaaga  | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct | ccaccggttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt | ctgggcttct  | tgcattctgg | aactgccaaag | 360  |
| tctgttactt | gtacgtactc | tccagccctt | aacaagatgt  | tttgccaact | cgcgaagacc  | 420  |
| tgcccagctc | aactgtgggt | cgactccacc | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg | gaggtcgtac  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac | acttttcgac  | acagtgtggt | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcggcgg | atcctgacca  | tcatcactct | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaatttcctt | gagatgcgtg  | tttgtgcatg | cccgggccgc  | 840  |
| gatcgccgga | ccgaaagagg | gaatctccgg | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggg | cttagaactt | aaggatgcc   | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct | gactcagact  | ga         |             | 1182 |

&lt;210&gt; 35

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 35

|            |            |            |             |            |             |      |
|------------|------------|------------|-------------|------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgct | gaaccacctc  | tgagtcagga | aaccttttca  | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt | gaacaatggg  | tactgaaga  | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct | ccaccggttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt | ctgggcttct  | tgcattctgg | aactgccaaag | 360  |
| tctgttactt | gtacgtactc | tccagccctt | aacaagatgt  | tttgccaact | cgcgaagacc  | 420  |
| tgcccagctc | aactgtgggt | cgactccacc | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg | gaggtcgtac  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac | acttttcgac  | acagtgtggt | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcggcgg | atcctgacca  | tcatcactct | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaatttcctt | gaggtgcgtg  | tttgtgcatg | cccgggccgc  | 840  |
| gatcgccgga | ccgaaagagg | gaatctccgg | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggg | cttagaactt | aaggatgcc   | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct | gactcagact  | ga         |             | 1182 |

&lt;210&gt; 36

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

```

<400> 36
atggaagaac cacagtcaga tcctagcgct gaaccacctc tgagtcagga aacctttttca 60
gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggg tctactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg cccagcacc agcagctcct 240
acaccggcgg cccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctaacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcctgc gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggg ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcgcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgctgt tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaagggt agcctcacca cgagctgcca 900
ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960
aaacctttgg acggagaata tttcacctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggctct gactcagact ga 1182

```

<210> 37

<211> 1182

<212> DNA

<213> Artificial Sequence

<220>

<223> Produced by genetic engineering

<400> 37

```

atggaagaac cacagtcaga tcctagcgct gaaccacctc tgagtcagga aacctttttca 60
gacctgtgga aattgcttcc tgaaaacaac gttctgtccc cattgcctag tcaagcaatg 120
gatgatttga tgctgtcccc agacgatatt gaacaatggg tctactgaaga tccaggccca 180
gatgaagctc cacgaatgcc agaggccgct ccaccggttg cccagcacc agcagctcct 240
acaccggcgg cccagctcc ggccccatcc tggcctctgt catcttctgt cccttcccag 300
aaaacctaacc agggcagcta cggtttccgt ctgggcttct tgcattctgg aactgccaag 360
tctgttactt gtacgtactc tccagccctt aacaagatgt tttgccaact cgcgaagacc 420
tgcccagtc aactgtgggt cgactccacc cctccacctg gtacacgtgt ccgcgcaatg 480
gccatctaca agcagagcca gcacatgacg gaggtcgtac gacgctgtcc acaccatgag 540
cgctgctcag attctgatgg tctggcgcca ccacagcatc ttatccgagt ggaaggtaac 600
ctacgcgtgg agtatctaga tgaccgcaac acttttcgac acagtgtggg ggtgccatat 660
gagccaccag aagttggctc tgactgcacc accatccact acaactatat gtgtaacagt 720
tcatgcatgg gcgcatgaa ccggcggccg atcctgacca tcatcactct cgaggattcc 780
tcaggtaatc tcctaggacg gaattccttt gaggtgctgt tttgtgcatg cccgggccgc 840
gatcgccgga ccgaagagga gaatctccgg aagaaagggt agcctcacca cgagctgcca 900
ccaggaagca ctaagcgagc actgccaaac aacaccagca gttctccaca gccaaagaag 960
aaacctttgg acggagaata tttcacctt cagatccgtg gccgtgagcg gttcgagatg 1020
ttccgagagc tgaatgaggc cttagaactt aaggatgccc aggctggtaa ggagccagga 1080
ggcagccgtg ctcatagcag ccacctgaag tccaaaaagg gtcagtctac ctcccgccat 1140
aaaaaactga tgttcaagac cgaaggctct gactcagact ga 1182

```

<210> 38

<211> 1182

<212> DNA

<213> Artificial Sequence

<220>

<223> Produced by genetic engineering

<400> 38

```

atggaagaac cacagtcaga tcctagcgct gaaccacctc tgagtcagga aacctttttca 60

```

## 433480\_1

|            |            |             |             |            |             |      |
|------------|------------|-------------|-------------|------------|-------------|------|
| gacctgtgga | aattgcttcc | tgaaaacaac  | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt  | gaacaatggg  | tcactgaaga | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccaccggttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc  | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt  | ctgggcttct  | tgcattctgg | aactgccaag  | 360  |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact | cgcggaagacc | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg  | gaggctcgta  | gacggtaccc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggg | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc  | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcgggccg | atcctgacca  | tcatcactct | cgaggatttc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt  | gagggtgcgtg | tttgtgcatg | cccgggccgc  | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagcttac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct  | gactcagact  | ga         |             | 1182 |

&lt;210&gt; 39

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 39

|            |            |             |             |            |             |      |
|------------|------------|-------------|-------------|------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgct  | gaaccacctc  | tgagtcagga | aaccttttca  | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac  | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt  | gaacaatggg  | tcactgaaga | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccaccggttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc  | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt  | ctgggcttct  | tgcattctgg | aactgccaag  | 360  |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact | cgcggaagacc | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg  | gaggctcgta  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggg | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc  | accatccact  | acaactatat | gtacaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcgggccg | atcctgacca  | tcatcactct | cgaggatttc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt  | gagggtgcgtg | tttgtgcatg | cccgggccgc  | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagcttac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct  | gactcagact  | ga         |             | 1182 |

&lt;210&gt; 40

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 40

|            |            |            |            |            |            |     |
|------------|------------|------------|------------|------------|------------|-----|
| atggaagaac | cacagtcaga | tcctagcgct | gaaccacctc | tgagtcagga | aaccttttca | 60  |
| gacctgtgga | aattgcttcc | tgaaaacaac | gttctgtccc | cattgcctag | tcaagcaatg | 120 |
| gatgatttga | tgctgtcccc | agacgatatt | gaacaatggg | tcactgaaga | tccaggccca | 180 |
| gatgaagctc | cacgaatgcc | agaggccgct | ccaccggttg | ccccagcacc | agcagctcct | 240 |

## 433480\_1

|            |            |            |             |            |             |      |
|------------|------------|------------|-------------|------------|-------------|------|
| acaccggcgg | ccccagctcc | ggccccatcc | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt | ctgggcttct  | tgcattctgg | aactgccaag  | 360  |
| tctgttactt | gtacgtactc | tccagccctt | aacaagatgt  | tttgccaact | cgcggaagacc | 420  |
| tgcccagttc | aactgtgggt | cgactccacc | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg | gaggtcgtac  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca | ccacagcadc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac | acttttcgac  | acagtgtggg | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcggccg | atcctgacca  | tcatactct  | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt | gaggtgcgtg  | tttgtgcatg | cctcggccgc  | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct | gactcagact  | ga         |             | 1182 |

&lt;210&gt; 41

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 41

|            |            |            |             |            |             |      |
|------------|------------|------------|-------------|------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgtc | gaaccacctc  | tgagtcagga | aaccttttca  | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt | gaacaatggt  | tcactgaaga | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct | ccaccggttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt | ctgggcttct  | tgcattctgg | aactgccaag  | 360  |
| tctgttactt | gtacgtactc | tccagccctt | aacaagatgt  | tttgccaact | cgcggaagacc | 420  |
| tgcccagttc | aactgtgggt | cgactccacc | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg | gaggtcgtac  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca | ccacagcadc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac | acttttcgac  | acagtgtggg | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcggccg | atcctgacca  | tcatactct  | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt | gaggtgcgtg  | tttgtgcatg | cccggccgc   | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct | gactcagact  | ga         |             | 1182 |

&lt;210&gt; 42

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 42

|            |            |            |            |            |             |     |
|------------|------------|------------|------------|------------|-------------|-----|
| atggaagaac | cacagtcaga | tcctagcgtc | gaaccacctc | tgagtcagga | aaccttttca  | 60  |
| gacctgtgga | aattgcttcc | tgaaaacaac | gttctgtccc | cattgcctag | tcaagcaatg  | 120 |
| gatgatttga | tgctgtcccc | agacgatatt | gaacaatggt | tcactgaaga | tccaggccca  | 180 |
| gatgaagctc | cacgaatgcc | agaggccgct | ccaccggttg | ccccagcacc | agcagctcct  | 240 |
| acaccggcgg | ccccagctcc | ggccccatcc | tggcctctgt | catcttctgt | cccttcccag  | 300 |
| aaaacctacc | agggcagcta | cggtttccgt | ctgggcttct | tgcattctgg | aactgccaag  | 360 |
| tctgttactt | gtacgtactc | tccagccctt | aacaagatgt | tttgccaact | cgcggaagacc | 420 |

## 433480\_1

|             |            |            |            |            |            |      |
|-------------|------------|------------|------------|------------|------------|------|
| tgcccagttcc | aactgtgggt | cgactccacc | cctccacctg | gtacacgtgt | ccgcgcaatg | 480  |
| gccatctaca  | agcagagcca | gcacatgacg | gaggtcgtac | gacgctgtcc | acaccatgag | 540  |
| cgctgctcag  | attctgatgg | tctggcgcca | ccacagcatc | ttatccgagt | ggaaggtaac | 600  |
| ctacgcgtgg  | agtatctaga | tgaccgcaac | acttttcgac | acagtgtggt | ggtgccatat | 660  |
| gagccaccag  | aagttggctc | tgactgcacc | accatccact | acaactatat | gtgtaacagt | 720  |
| tcattgcatgg | gcggcatgaa | ccggcggcgg | atcctgacca | tcatactct  | cgaggattcc | 780  |
| tcaggtaatc  | tcctaggacg | gaatttcctt | gaggtgcgtg | tttgtgcatg | cccgggcaaa | 840  |
| gatcgccgga  | ccgaagagga | gaatctccgg | aagaaagggt | agcctcacca | cgagctgcca | 900  |
| ccaggaagca  | ctaagcgagc | actgccaaac | aacaccagca | gttctccaca | gccaaagaag | 960  |
| aaacctttgg  | acggagaata | tttcaccctt | cagatccgtg | gccgtgagcg | gttcgagatg | 1020 |
| ttccgagagc  | tgaatgaggc | cttagaactt | aaggatgccc | aggctggtaa | ggagccagga | 1080 |
| ggcagccgtg  | ctcatagcag | ccacctgaag | tccaaaaagg | gtcagtctac | ctcccgccat | 1140 |
| aaaaaactga  | tgttcaagac | cgaaggctct | gactcagact | ga         |            | 1182 |

&lt;210&gt; 43

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 43

|             |            |            |            |            |             |      |
|-------------|------------|------------|------------|------------|-------------|------|
| atggaagaac  | cacagtcaga | tcctagcgct | gaaccacctc | tgagtcagga | aaccttttca  | 60   |
| gacctgtgga  | aattgcttcc | tgaaaacaac | gttctgtccc | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga  | tgctgtcccc | agacgatatt | gaacaatggg | tcactgaaga | tccaggccca  | 180  |
| gatgaagctc  | cacgaatgcc | agaggccgct | ccaccgggtg | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg  | ccccagctcc | ggccccatcc | tggcctctgt | catcttctgt | cccttcccag  | 300  |
| aaaacctacc  | agggcagcta | cggtttccgt | ctgggcttct | tgcattctgg | aactgccaag  | 360  |
| tctgttactt  | gtacgtactc | tccagccctt | aacaagatgt | tttgccaact | cgcggaagacc | 420  |
| tgcccagttcc | aactgtgggt | cgactccacc | cctccacctg | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca  | agcagagcca | gcacatgacg | gaggtcgtac | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag  | attctgatgg | tctggcgcca | ccacagcatc | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg  | agtatctaga | tgaccgcaac | acttttcgaa | gatctgtggt | ggtgccatat  | 660  |
| gagccaccag  | aagttggctc | tgactgcacc | accatccact | acaactatat | gtgtaacagt  | 720  |
| tcattgcatgg | gcggcatgaa | ccggcggcgg | atcctgacca | tcatactct  | cgaggattcc  | 780  |
| tcaggtaatc  | tcctaggacg | gaatttcctt | gaggtgcgtg | tttgtgcatg | cccgggcccgc | 840  |
| gatcgccgga  | ccgaagagga | gaatctccgg | aagaaagggt | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca  | ctaagcgagc | actgccaaac | aacaccagca | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg  | acggagaata | tttcaccctt | cagatccgtg | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc  | tgaatgaggc | cttagaactt | aaggatgccc | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg  | ctcatagcag | ccacctgaag | tccaaaaagg | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga  | tgttcaagac | cgaaggctct | gactcagact | ga         |             | 1182 |

&lt;210&gt; 44

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 44

|             |            |            |            |            |             |     |
|-------------|------------|------------|------------|------------|-------------|-----|
| atggaagaac  | cacagtcaga | tcctagcgct | gaaccacctc | tgagtcagga | aaccttttca  | 60  |
| gacctgtgga  | aattgcttcc | tgaaaacaac | gttctgtccc | cattgcctag | tcaagcaatg  | 120 |
| gatgatttga  | tgctgtcccc | agacgatatt | gaacaatggg | tcactgaaga | tccaggccca  | 180 |
| gatgaagctc  | cacgaatgcc | agaggccgct | ccaccgggtg | ccccagcacc | agcagctcct  | 240 |
| acaccggcgg  | ccccagctcc | ggccccatcc | tggcctctgt | catcttctgt | cccttcccag  | 300 |
| aaaacctacc  | agggcagcta | cggtttccgt | ctgggcttct | tgcattctgg | aactgccaag  | 360 |
| tctgttactt  | gtacgtactc | tccagccctt | aacaagatgt | tttgccaact | cgcggaagacc | 420 |
| tgcccagttcc | aactgtgggt | cgactccacc | cctccacctg | gtacacgtgt | ccgcgcaatg  | 480 |
| gccatctaca  | agcagagcca | gcacatgacg | gaggtcgtac | gacgctgtcc | acaccatgag  | 540 |
| cgctgctcag  | attctgatgg | tctggcgcca | ccacagcatc | ttatccgagt | ggaaggtaac  | 600 |

## 433480\_1

|            |            |            |             |            |            |      |
|------------|------------|------------|-------------|------------|------------|------|
| ctacgcgtgg | agtatctaga | tgaccgcaac | acttttctgac | acagtgtggt | ggtgccatat | 660  |
| gagccaccag | aagttggctc | tgactgcacc | accatccact  | acaactatat | gtgtaacagt | 720  |
| tcattgcatg | gcggcatgaa | ccggcggccg | atcctgacca  | tcatactct  | cgaggattcc | 780  |
| tcaggtaatc | tccttcgaag | gaattccttt | gaggtgctgt  | tttgtgcatg | cccgggccgc | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg | aagaaagggtg | agcctcacca | cgagctgcca | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac | aacaccagca  | gttctccaca | gccaaagaag | 960  |
| aaacctttgg | acggagaata | tttcaccctt | cagatccgtg  | gccgtgagcg | gttcgagatg | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt | aaggatgccc  | aggctggtaa | ggagccagga | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag | tccaaaaagg  | gtcagtctac | ctcccgccat | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct | gactcagact  | ga         |            | 1182 |

&lt;210&gt; 45

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 45

|            |            |            |             |            |             |      |
|------------|------------|------------|-------------|------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgct | gaaccacctc  | tgagtcagga | aaccttttca  | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt | gaacaatggt  | tcactgaaga | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct | ccaccggttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt | ctgggcttct  | tgatttctgg | aactgccaag  | 360  |
| tctgttactt | gtacgtactc | tccagccctt | aacaagatgt  | tttgccaact | cgcggaagacc | 420  |
| tgcccagttc | aactgtgggt | cgactccacc | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg | gaggtcatgc  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac | acttttctgac | acagtgtggt | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcattgcatg | gcggcatgaa | ccggcggccg | atcctgacca  | tcatactct  | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt | gaggtgctgt  | tttgtgcatg | cccgggccgc  | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct | gactcagact  | ga         |             | 1182 |

&lt;210&gt; 46

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 46

|            |            |            |             |            |             |     |
|------------|------------|------------|-------------|------------|-------------|-----|
| atggaagaac | cacagtcaga | tcctagcgct | gaaccacctc  | tgagtcagga | aaccttttca  | 60  |
| gacctgtgga | aattgcttcc | tgaaaacaac | gttctgtccc  | cattgcctag | tcaagcaatg  | 120 |
| gatgatttga | tgctgtcccc | agacgatatt | gaacaatggt  | tcactgaaga | tccaggccca  | 180 |
| gatgaagctc | cacgaatgcc | agaggccgct | ccaccggttg  | ccccagcacc | agcagctcct  | 240 |
| acaccggcgg | ccccagctcc | ggccccatcc | tggcctctgt  | catcttctgt | cccttcccag  | 300 |
| aaaacctacc | agggcagcta | cggtttccgt | ctgggcttct  | tgatttctgg | aactgccaag  | 360 |
| tctgttactt | gtacgtactc | tccagccctt | aacaagatgt  | tttgccaact | cgcggaagacc | 420 |
| tgcccagttc | aactgtgggt | cgactccacc | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480 |
| gccatctaca | agcagagcca | gcacatgacg | gaggtcgatc  | gacgctgtcc | acaccatgag  | 540 |
| cgctgctcag | attctgatgg | tctggcgcca | ccacagcatc  | ttacacgagt | ggaaggtaac  | 600 |
| ctacgcgtgg | agtatctaga | tgaccgcaac | acttttctgac | acagtgtggt | ggtgccatat  | 660 |
| gagccaccag | aagttggctc | tgactgcacc | accatccact  | acaactatat | gtgtaacagt  | 720 |
| tcattgcatg | gcggcatgaa | ccggcggccg | atcctgacca  | tcatactct  | cgaggattcc  | 780 |

## 433480\_1

|            |            |            |             |            |            |      |
|------------|------------|------------|-------------|------------|------------|------|
| tcaggaatc  | tcctaggacg | gaattccttt | gaggtgctg   | tttgtgcatg | cccgggccgc | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg | aagaaagggtg | agcctcacca | cgagctgcca | 900  |
| ccaggaagca | ctaagcgagc | actgccaac  | aacaccagca  | gttctccaca | gccaaagaag | 960  |
| aaacctttgg | acggagaata | tttcaccctt | cagatccgtg  | gccgtgagcg | gttcgagatg | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt | aaggatgccc  | aggctggtaa | ggagccagga | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag | tccaaaaagg  | gtcagcttac | ctcccgccat | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct | gactcagact  | ga         |            | 1182 |

&lt;210&gt; 47

&lt;211&gt; 1181

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 47

|             |            |            |             |             |            |      |
|-------------|------------|------------|-------------|-------------|------------|------|
| tggaagaacc  | acagtcagat | cctagcgctc | aaccacctct  | gagtcaggaa  | accttttcag | 60   |
| acctgtggaa  | attgtttcct | gaaaacaacg | ttctgtcccc  | attgcctagt  | caagcaatgg | 120  |
| atgatttgat  | gctgtcccca | gacgatattg | aacaatgggt  | caactgaagat | ccaggcccag | 180  |
| atgaagctcc  | acgaatgcc  | gaggccgctc | caccgggttg  | cccagcacca  | gcagctccta | 240  |
| caccggcggc  | cccagctccg | gccccatcct | ggcctctgtc  | atcttctgtc  | ccttcccaga | 300  |
| aaacctacca  | gggcagctac | ggtttccgct | tgggttctct  | gcattctgga  | actgccaagt | 360  |
| ctgttacttg  | tacgtactct | ccagccctta | acaagatggt  | ttaccaactc  | gcgaagacct | 420  |
| gccccatcca  | actgtgggtc | gactccaccc | ctccacctgg  | tacacgtgtc  | cgcgcaatgg | 480  |
| ccatctacaa  | gcagagccag | cacatgacgg | aggctcgtac  | acgctgtcca  | caccatgagc | 540  |
| gctgctcaga  | ttctgatggg | ctggcgccac | cacagcatct  | tatccgagtg  | gaaggtaacc | 600  |
| tacgcgtgga  | gtatctagat | gaccgcaaca | cttttcgaca  | cagtgtgggt  | gtgccatatg | 660  |
| agccaccaga  | agttggctct | gactgcacca | ccatccacta  | caactatatg  | tgtaacagtt | 720  |
| catgcatggg  | cggcatgaac | cggcgccgga | tcctgacctt  | catcactctc  | gaggattcct | 780  |
| caggtaaatct | cctaggacgg | aatttccttg | agggtcgtgt  | tttgtgcatg  | ccgggccgcg | 840  |
| atcgccggac  | cgaagaggag | aatctccgga | agaaagggtga | gcctcaccac  | gagctgccac | 900  |
| caggaagcac  | taagcgagca | ctgccaacaa | acaccagcag  | ttctccacag  | ccaaagaaga | 960  |
| aaactttgga  | cggagaatat | ttcacccttc | agatccgtgg  | ccgtgagcgg  | ttcgagatgt | 1020 |
| tccgagagct  | gaatgaggcc | ttagaactta | aggatgccc   | ggctggtaag  | gagccaggag | 1080 |
| gcagccgtgc  | tcatagcagc | cacctgaagt | ccaaaaagg   | tcagtctacc  | tcccgccata | 1140 |
| aaaaaactgat | gttcaagacc | gaaggctcct | actcagactg  | a           |            | 1181 |

&lt;210&gt; 48

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 48

|            |            |            |             |            |            |     |
|------------|------------|------------|-------------|------------|------------|-----|
| atggaagaac | cacagtcaga | tcctagcgct | gaaccacctc  | tgagtcagg  | aaccttttca | 60  |
| gacctgtgga | aattgtttcc | tgaaaacaac | gttctgtccc  | cattgcctag | tcaagcaatg | 120 |
| gatgatttga | tgctgtcccc | agacgatatt | gaacaatggg  | tcactgaaga | tccaggccca | 180 |
| gatgaagctc | cacgaatgcc | agaggccgct | ccaccgggtg  | ccccagcacc | agcagctcct | 240 |
| acaccggcgg | ccccagctcc | ggccccatcc | tggcctctgt  | catcttctgt | cccttcccag | 300 |
| aaaacctacc | agggcagcta | cggtttccgt | ctgggtctct  | tgcatctctg | aactgccaag | 360 |
| ttgtttactt | gtacgtactc | tcagaccctt | aacaagatgt  | tttgccaact | cgcaagacc  | 420 |
| tgcccagtc  | aactgtgggt | cgactccacc | cctccacctg  | gtacacgtgt | ccgcgcaatg | 480 |
| gccatctaca | agcagagcca | gcacatgacg | gaggtcgtac  | gacgctgtcc | acaccatgag | 540 |
| cgctgctcag | attctgatgg | tctggcgcca | ccacagcatc  | ttatccgagt | ggaaggtaac | 600 |
| ctacgcgtgg | agtatctaga | tgaccgcaac | acttttcgac  | acagtgtggg | ggtgccatat | 660 |
| gagccaccag | aggttggtct | tgactgcacc | accatccact  | acaactatat | gtgtaactca | 720 |
| agcttcatgg | gcggcatgaa | ccggcgcccg | acctctgacca | tcactactct | cgaggattcc | 780 |
| tcaggtaatc | tcctaggacg | gaattccttt | gaggtgctg   | tttgtgcatg | cccgggccgc | 840 |
| gatcgccgga | ccgaagagga | gaatctccgg | aagaaagggtg | agcctcacca | cgagctgcca | 900 |
| ccaggaagca | ctaagcgagc | actgccaac  | aacaccagca  | gttctccaca | gccaaagaag | 960 |

## 433480\_1

|            |            |            |            |            |            |      |
|------------|------------|------------|------------|------------|------------|------|
| aaaccttttg | acggagaata | tttcaccctt | cagatccgtg | gccgtgagcg | gttcgagatg | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt | aaggatgccc | aggctggtaa | ggagccagga | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag | tccaaaaagg | gtcagtctac | ctccccccat | 1140 |
| aaaaaactga | tgttcaagac | cgaaggtcct | gactcagact | ga         |            | 1182 |

&lt;210&gt; 49

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 49

|            |            |             |             |            |             |      |
|------------|------------|-------------|-------------|------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgct  | gaaccacctc  | tgagtcagga | aacctttttca | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac  | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt  | gaacaatggg  | tcactgaaga | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccaccgggtg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc  | tgccctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggttttccgt | ctgggcttct  | tgcatctctg | aactgccaaag | 360  |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact | cgcgaagacc  | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg  | gaggctcgta  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggt | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc  | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcggcgg  | atcctgacca  | tcatcactct | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt  | gagggtgcgtg | tttacgcgtg | cccgggccgc  | 840  |
| gacgcccggg | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaaccttttg | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagtctac | ctccccccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggtcct  | gactcagact  | ga         |             | 1182 |

&lt;210&gt; 50

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 50

|            |            |             |             |            |             |      |
|------------|------------|-------------|-------------|------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgct  | gaaccacctc  | tgagtcagga | aacctttttca | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac  | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt  | gaacaatggg  | tcactgaaga | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccaccgggtg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc  | tgccctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggttttccgt | ctgggcttct  | tgcatctctg | aactgccaaag | 360  |
| tctgttactt | gtacgtactc | tccagccctt  | aaccgcatgt  | tttgccaact | cgcgaagacc  | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg  | gaggctcgta  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggt | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc  | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcggcgg  | atcctgacca  | tcatcactct | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt  | gagggtgcgtg | tttgtgcatg | cccgggccgc  | 840  |
| gacgcccggg | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaaccttttg | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagtctac | ctccccccat  | 1140 |



aaaaaactga tgttcaagac cgaaggtcct gactcagact ga 1182

<210> 51

<211> 1182

<212> DNA

<213> Artificial Sequence

<220>

<223> Produced by genetic engineering

<400> 51

|            |            |             |             |             |             |      |
|------------|------------|-------------|-------------|-------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgctc | gaaccacctc  | tgagtcagga  | aacctttttca | 60   |
| gacctgtgga | aattgcttcc | tgaaaaacaac | gttctgtccc  | cattgcctag  | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt  | gaacaatggg  | tcactgaaga  | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccaccgggtg  | ccccagcacc  | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc  | tggcctctgt  | catcttctgt  | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt  | ctgggcttct  | tgcattcttg  | aactgccaag  | 360  |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact  | cgcggaagacc | 420  |
| tgcccagttc | aactgtgggt | cgactccacc  | cctccaccgg  | taacacgtgt  | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg  | gaggctcgta  | gacgctgtcc  | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt  | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggg  | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc  | accatccact  | acaactatat  | gtgtaacagt  | 720  |
| tcatgcattg | gcggcatgaa | ccggcggccg  | atcctgacca  | tcatactct   | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaatttcctt  | gagggtgcgtg | tttgtgcatg  | cccgggccgc  | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca  | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca  | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg  | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa  | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagctctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggtcct  | gactcagact  | ga          |             | 1182 |

<210> 52

<211> 1182

<212> DNA

<213> Artificial Sequence

<220>

<223> Produced by genetic engineering

<400> 52

|            |            |             |             |             |             |      |
|------------|------------|-------------|-------------|-------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgctc | gaaccacctc  | tgagtcagga  | aacctttttca | 60   |
| gacctgtgga | aattgcttcc | tgaaaaacaac | gttctgtccc  | cattgcctag  | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt  | gaacaatggg  | tcactgaaga  | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccaccgggtg  | ccccagcacc  | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc  | tggcctctgt  | catcttctgt  | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt  | ctgggcttct  | tgcattcttg  | aactgccaag  | 360  |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact  | cgcggaagacc | 420  |
| tgcccagttc | aactgtgggt | cgactccacc  | cctccaccctg | gtacacgtgt  | ccgcgcaatg  | 480  |
| acaatctaca | agcagagcca | gcacatgacg  | gaggctcgta  | gacgctgtcc  | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt  | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggg  | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc  | accatccact  | acaactatat  | gtgtaacagt  | 720  |
| tcatgcattg | gcggcatgaa | ccggcggccg  | atcctgacca  | tcatactct   | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaatttcctt  | gagggtgcgtg | tttgtgcatg  | cccgggccgc  | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca  | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca  | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg  | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa  | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagctctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggtcct  | gactcagact  | ga          |             | 1182 |

<210> 53

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 53

|            |            |             |             |             |             |      |
|------------|------------|-------------|-------------|-------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgtc  | gaaccacctc  | tgagtcagga  | aaccttttca  | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac  | gttctgtccc  | cattgcctag  | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcccc | agacgatatt  | gaacaatggt  | tcactgaaga  | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccaccggttg  | ccccagcacc  | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc  | tggcctctgt  | catcttctgt  | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt  | ctgggcttct  | tgcattctgg  | aactgccaag  | 360  |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact  | cgcggaagacc | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt  | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg  | gaggctgtac  | gacgctgtcc  | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt  | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggt  | ggtgccatat  | 660  |
| gagccaccag | aagtgtgctc | tgactgcacc  | accatccact  | acaactatat  | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcgggccg | atcctgacca  | tcatcactct  | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt  | gagggtgcgtg | tttgtgcatg  | cccggggccgc | 840  |
| gagcgccgga | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca  | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca  | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg  | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa  | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagctctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct  | gactcagact  | ga          |             | 1182 |

&lt;210&gt; 54

&lt;211&gt; 393

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 54

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Glu | Glu | Pro | Gln | Ser | Asp | Pro | Ser | Val | Glu | Pro | Pro | Leu | Ser | Gln |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Glu | Thr | Phe | Ser | Asp | Leu | Trp | Lys | Leu | Leu | Pro | Glu | Asn | Asn | Val | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser | Pro | Leu | Pro | Ser | Gln | Ala | Met | Asp | Asp | Leu | Met | Leu | Ser | Pro | Asp |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asp | Ile | Glu | Gln | Trp | Phe | Thr | Glu | Asp | Pro | Gly | Pro | Asp | Glu | Ala | Pro |
|     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Arg | Met | Pro | Glu | Ala | Ala | Pro | Pro | Val | Ala | Pro | Ala | Pro | Ala | Ala | Pro |
|     | 65  |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Thr | Pro | Ala | Ala | Pro | Ala | Pro | Ala | Pro | Ser | Trp | Pro | Leu | Ser | Ser | Ser |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Val | Pro | Ser | Gln | Lys | Thr | Tyr | Gln | Gly | Ser | Tyr | Gly | Phe | Arg | Leu | Gly |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Phe | Leu | His | Ser | Gly | Thr | Ala | Lys | Ser | Val | Thr | Cys | Thr | Tyr | Ser | Pro |
|     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Ala | Leu | Asn | Lys | Met | Phe | Cys | Gln | Leu | Ala | Lys | Thr | Cys | Pro | Val | Gln |
|     | 130 |     |     |     | 135 |     |     |     |     |     | 140 |     |     |     |     |
| Leu | Trp | Val | Asp | Ser | Thr | Pro | Pro | Pro | Gly | Thr | Arg | Val | Arg | Ala | Met |
|     | 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Ala | Ile | Tyr | Lys | Gln | Ser | Gln | His | Met | Thr | Glu | Val | Val | Arg | Arg | Cys |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Pro | His | His | Glu | Arg | Cys | Ser | Asp | Ser | Asp | Gly | Leu | Ala | Pro | Pro | Gln |
|     |     |     | 180 |     |     |     | 185 |     |     |     |     |     | 190 |     |     |
| His | Leu | Ile | Arg | Val | Glu | Gly | Asn | Leu | Arg | Val | Glu | Tyr | Leu | Asp | Asp |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Arg | Asn | Thr | Phe | Arg | His | Ser | Val | Val | Val | Pro | Tyr | Glu | Pro | Pro | Glu |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |

## 433480\_1

Val Gly Ser Asp Cys Thr Thr Ile His Tyr Asn Tyr Met Cys Asn Ser  
 225 230 235 240  
 Ser Cys Met Gly Gly Met Asn Arg Arg Pro Ile Leu Thr Ile Ile Thr  
 245 250 255  
 Leu Glu Asp Ser Ser Gly Asn Leu Leu Gly Arg Asn Ser Phe Glu Val  
 260 265 270  
 Arg Val Cys Ala Cys Pro Gly Arg Asp Arg Arg Thr Glu Glu Asn  
 275 280 285  
 Leu Arg Lys Lys Gly Glu Pro His His Glu Leu Pro Pro Gly Ser Thr  
 290 295 300  
 Lys Arg Ala Leu Pro Asn Asn Thr Ser Ser Ser Pro Gln Pro Lys Lys  
 305 310 315 320  
 Lys Pro Leu Asp Gly Glu Tyr Phe Thr Leu Gln Ile Arg Gly Arg Glu  
 325 330 335  
 Arg Phe Glu Met Phe Arg Glu Leu Asn Glu Ala Leu Glu Leu Lys Asp  
 340 345 350  
 Ala Gln Ala Gly Lys Glu Pro Gly Gly Ser Arg Ala His Ser Ser His  
 355 360 365  
 Leu Lys Ser Lys Lys Gly Gln Ser Thr Ser Arg His Lys Lys Leu Met  
 370 375 380  
 Phe Lys Thr Glu Gly Pro Asp Ser Asp  
 385 390

<210> 55  
 <211> 393  
 <212> PRT  
 <213> Homo sapiens

<400> 55  
 Met Glu Glu Pro Gln Ser Asp Pro Ser Val Glu Pro Pro Leu Ser Gln  
 1 5 10 15  
 Glu Thr Phe Ser Asp Leu Trp Lys Leu Leu Pro Glu Asn Asn Val Leu  
 20 25 30  
 Ser Pro Leu Pro Ser Gln Ala Met Asp Asp Leu Met Leu Ser Pro Asp  
 35 40 45  
 Asp Ile Glu Gln Trp Phe Thr Glu Asp Pro Gly Pro Asp Glu Ala Pro  
 50 55 60  
 Arg Met Pro Glu Ala Ala Pro Arg Val Ala Pro Ala Pro Ala Ala Pro  
 65 70 75 80  
 Thr Pro Ala Ala Pro Ala Pro Ala Pro Ser Trp Pro Leu Ser Ser Ser  
 85 90 95  
 Val Pro Ser Gln Lys Thr Tyr Gln Gly Ser Tyr Gly Phe Arg Leu Gly  
 100 105 110  
 Phe Leu His Ser Gly Thr Ala Lys Ser Val Thr Cys Thr Tyr Ser Pro  
 115 120 125  
 Ala Leu Asn Lys Met Phe Cys Gln Leu Ala Lys Thr Cys Pro Val Gln  
 130 135 140  
 Leu Trp Val Asp Ser Thr Pro Pro Pro Gly Thr Arg Val Arg Ala Met  
 145 150 155 160  
 Ala Ile Tyr Lys Gln Ser Gln His Met Thr Glu Val Val Arg Arg Cys  
 165 170 175  
 Pro His His Glu Arg Cys Ser Asp Ser Asp Gly Leu Ala Pro Pro Gln  
 180 185 190  
 His Leu Ile Arg Val Glu Gly Asn Leu Arg Val Glu Tyr Leu Asp Asp  
 195 200 205  
 Arg Asn Thr Phe Arg His Ser Val Val Val Pro Tyr Glu Pro Pro Glu  
 210 215 220  
 Val Gly Ser Asp Cys Thr Thr Ile His Tyr Asn Tyr Met Cys Asn Ser  
 225 230 235 240  
 Ser Cys Met Gly Gly Met Asn Arg Arg Pro Ile Leu Thr Ile Ile Thr  
 245 250 255  
 Leu Glu Asp Ser Ser Gly Asn Leu Leu Gly Arg Asn Ser Phe Glu Val  
 260 265 270

## 433480\_1

Arg Val Cys Ala Cys Pro Gly Arg Asp Arg Arg Thr Glu Glu Glu Asn  
 275 280 285  
 Leu Arg Lys Lys Gly Glu Pro His His Glu Leu Pro Pro Gly Ser Thr  
 290 295 300  
 Lys Arg Ala Leu Pro Asn Asn Thr Ser Ser Ser Pro Gln Pro Lys Lys  
 305 310 315 320  
 Lys Pro Leu Asp Gly Glu Tyr Phe Thr Leu Gln Ile Arg Gly Arg Glu  
 325 330 335  
 Arg Phe Glu Met Phe Arg Glu Leu Asn Glu Ala Leu Glu Leu Lys Asp  
 340 345 350  
 Ala Gln Ala Gly Lys Glu Pro Gly Gly Ser Arg Ala His Ser Ser His  
 355 360 365  
 Leu Lys Ser Lys Lys Gly Gln Ser Thr Ser Arg His Lys Lys Leu Met  
 370 375 380  
 Phe Lys Thr Glu Gly Pro Asp Ser Asp  
 385 390

&lt;210&gt; 56

&lt;211&gt; 393

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 56

Met Glu Glu Pro Gln Ser Asp Pro Ser Val Glu Pro Pro Leu Ser Gln  
 1 5 10 15  
 Glu Thr Phe Ser Asp Leu Trp Lys Leu Leu Pro Glu Asn Asn Val Leu  
 20 25 30  
 Ser Pro Leu Pro Ser Gln Ala Met Asp Asp Leu Met Leu Ser Ser Asp  
 35 40 45  
 Asp Ile Glu Gln Trp Phe Thr Glu Asp Pro Gly Pro Asp Glu Ala Pro  
 50 55 60  
 Arg Met Pro Glu Ala Ala Pro Arg Val Ala Pro Ala Pro Ala Ala Pro  
 65 70 75 80  
 Thr Pro Ala Ala Pro Ala Pro Ala Pro Ser Trp Pro Leu Ser Ser Ser  
 85 90 95  
 Val Pro Ser Gln Lys Thr Tyr Gln Gly Ser Tyr Gly Phe Arg Leu Gly  
 100 105 110  
 Phe Leu His Ser Gly Thr Ala Lys Ser Val Thr Cys Thr Tyr Ser Pro  
 115 120 125  
 Ala Leu Asn Lys Met Phe Cys Gln Leu Ala Lys Thr Cys Pro Val Gln  
 130 135 140  
 Leu Trp Val Asp Ser Thr Pro Pro Pro Gly Thr Arg Val Arg Ala Met  
 145 150 155 160  
 Ala Ile Tyr Lys Gln Ser Gln His Met Thr Glu Val Val Arg Arg Cys  
 165 170 175  
 Pro His His Glu Arg Cys Ser Asp Ser Asp Gly Leu Ala Pro Pro Gln  
 180 185 190  
 His Leu Ile Arg Val Glu Gly Asn Leu Arg Val Glu Tyr Leu Asp Asp  
 195 200 205  
 Arg Asn Thr Phe Arg His Ser Val Val Val Pro Tyr Glu Pro Pro Glu  
 210 215 220  
 Val Gly Ser Asp Cys Thr Thr Ile His Tyr Asn Tyr Met Cys Asn Ser  
 225 230 235 240  
 Ser Cys Met Gly Gly Met Asn Arg Arg Pro Ile Leu Thr Ile Ile Thr  
 245 250 255  
 Leu Glu Asp Ser Ser Gly Asn Leu Leu Gly Arg Asn Ser Phe Glu Val  
 260 265 270  
 Arg Val Cys Ala Cys Pro Gly Arg Asp Arg Arg Thr Glu Glu Asn  
 275 280 285  
 Leu Arg Lys Lys Gly Glu Pro His His Glu Leu Pro Pro Gly Ser Thr  
 290 295 300  
 Lys Arg Ala Leu Pro Asn Asn Thr Ser Ser Ser Pro Gln Pro Lys Lys

## 433480\_1

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 305 | Lys | Pro | Leu | Asp | Gly | 310 | Glu | Tyr | Phe | Thr | Leu | 315 | Gln | Ile | Arg | Gly | Arg | 320 | Glu |
|     |     |     |     |     | 325 |     |     |     |     |     |     | 330 |     |     |     |     | 335 |     |     |
|     | Arg | Phe | Glu | Met | Phe | Arg | Glu | Leu | Asn |     | Glu | Ala | Leu | Glu | Leu | Lys | Asp |     |     |
|     |     |     |     | 340 |     |     |     |     | 345 |     |     |     |     |     | 350 |     |     |     |     |
|     | Ala | Gln | Ala | Gly | Lys | Glu | Pro | Gly | Gly | Ser | Arg | Ala | His |     | Ser | Ser | His |     |     |
|     |     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |     |     |     |
|     | Leu | Lys | Ser | Lys | Lys | Gly | Gln | Ser | Thr | Ser | Arg | His | Lys | Lys | Leu | Met |     |     |     |
|     |     | 370 |     |     |     | 375 |     |     |     |     |     | 380 |     |     |     |     |     |     |     |
|     | Phe | Lys | Thr | Glu | Gly | Pro | Asp | Ser | Asp |     |     |     |     |     |     |     |     |     |     |
|     | 385 |     |     |     |     | 390 |     |     |     |     |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 57

&lt;211&gt; 393

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 57

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| Met | Glu | Glu | Pro | Gln | Ser | Asp | Pro | Ser | Val | Glu | Pro | Pro | Leu | Ser | Gln |  |  |  |  |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |  |  |  |  |
| Glu | Thr | Phe | Ser | Asp | Leu | Trp | Lys | Leu | Leu | Pro | Glu | Asn | Asn | Val | Leu |  |  |  |  |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |  |  |  |  |
| Ser | Pro | Leu | Pro | Ser | Gln | Ala | Met | Asp | Asp | Leu | Met | Leu | Ser | Ser | Asp |  |  |  |  |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |  |  |  |  |
| Asp | Ile | Glu | Gln | Trp | Phe | Thr | Glu | Asp | Pro | Gly | Pro | Asp | Glu | Ala | Pro |  |  |  |  |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |  |  |  |  |
| Arg | Met | Pro | Glu | Ala | Ala | Pro | Pro | Val | Ala | Pro | Ala | Pro | Ala | Ala | Pro |  |  |  |  |
|     | 65  |     |     | 70  |     |     |     |     | 75  |     |     |     |     |     | 80  |  |  |  |  |
| Thr | Pro | Ala | Ala | Pro | Ala | Pro | Ala | Pro | Ser | Trp | Pro | Leu | Ser | Ser | Ser |  |  |  |  |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |  |  |  |  |
| Val | Pro | Ser | Gln | Lys | Thr | Tyr | Gln | Gly | Ser | Tyr | Gly | Phe | Arg | Leu | Gly |  |  |  |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |  |  |  |
| Phe | Leu | His | Ser | Gly | Thr | Ala | Lys | Ser | Val | Thr | Cys | Thr | Tyr | Ser | Pro |  |  |  |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |  |  |  |
| Ala | Leu | Asn | Lys | Met | Phe | Cys | Gln | Leu | Ala | Lys | Thr | Cys | Pro | Val | Gln |  |  |  |  |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |  |  |  |
| Leu | Trp | Val | Asp | Ser | Thr | Pro | Pro | Pro | Gly | Thr | Arg | Val | Arg | Ala | Met |  |  |  |  |
|     | 145 |     |     |     | 150 |     |     |     | 155 |     |     |     |     |     | 160 |  |  |  |  |
| Ala | Ile | Tyr | Lys | Gln | Ser | Gln | His | Met | Thr | Glu | Val | Val | Arg | Arg | Cys |  |  |  |  |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |  |  |  |  |
| Pro | His | His | Glu | Arg | Cys | Ser | Asp | Ser | Asp | Gly | Leu | Ala | Pro | Pro | Gln |  |  |  |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |  |  |  |  |
| His | Leu | Ile | Arg | Val | Glu | Gly | Asn | Leu | Arg | Val | Glu | Tyr | Leu | Asp | Asp |  |  |  |  |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |  |  |  |  |
| Arg | Asn | Thr | Phe | Arg | His | Ser | Val | Val | Val | Pro | Tyr | Glu | Pro | Pro | Glu |  |  |  |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |  |  |  |
| Val | Gly | Ser | Asp | Cys | Thr | Thr | Ile | His | Tyr | Asn | Tyr | Met | Cys | Asn | Ser |  |  |  |  |
|     | 225 |     |     |     | 230 |     |     |     | 235 |     |     |     |     |     | 240 |  |  |  |  |
| Ser | Cys | Met | Gly | Gly | Met | Asn | Arg | Arg | Pro | Ile | Leu | Thr | Ile | Ile | Thr |  |  |  |  |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |     |  |  |  |  |
| Leu | Glu | Asp | Ser | Ser | Gly | Asn | Leu | Leu | Gly | Arg | Asn | Ser | Phe | Glu | Val |  |  |  |  |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |  |  |  |  |
| Arg | Val | Cys | Ala | Cys | Pro | Gly | Arg | Asp | Arg | Arg | Thr | Glu | Glu | Glu | Asn |  |  |  |  |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |  |  |  |
| Leu | Arg | Lys | Lys | Gly | Glu | Pro | His | His | Glu | Leu | Pro | Pro | Gly | Ser | Thr |  |  |  |  |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |  |  |  |
| Lys | Arg | Ala | Leu | Pro | Asn | Asn | Thr | Ser | Ser | Ser | Pro | Gln | Pro | Lys | Lys |  |  |  |  |
|     | 305 |     |     |     | 310 |     |     |     | 315 |     |     |     |     |     | 320 |  |  |  |  |
| Lys | Pro | Leu | Asp | Gly | Glu | Tyr | Phe | Thr | Leu | Gln | Ile | Arg | Gly | Arg | Glu |  |  |  |  |
|     |     |     | 325 |     |     |     |     |     | 330 |     |     |     | 335 |     |     |  |  |  |  |
| Arg | Phe | Glu | Met | Phe | Arg | Glu | Leu | Asn | Glu | Ala | Leu | Glu | Leu | Lys | Asp |  |  |  |  |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |  |  |  |  |
| Ala | Gln | Ala | Gly | Lys | Glu | Pro | Gly | Gly | Ser | Arg | Ala | His | Ser | Ser | His |  |  |  |  |

## 433480\_1

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| agagccaccg | tccagggagc  | aggtagctgc  | tgggctccgg  | ggacactttg  | cgttcgggct  | 180  |
| gggagcgtgc | tttccacgac  | ggtgacacgc  | ttccctggat  | tggcagccag  | actgccttcc  | 240  |
| gggtcactgc | catggaggag  | ccgcagtcag  | atcctagcgt  | cgagccccct  | ctgagtcagg  | 300  |
| aaacattttc | agacctatgg  | aaactacttc  | ctgaaaacaa  | cgttctgtcc  | cccttgccgt  | 360  |
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| acccaggctc | agatgaagct  | cccagaatgc  | cagaggctgc  | tcccccgctg  | gccccctgcac | 480  |
| cagcagctcc | tacaccggcg  | gccccctgcac | cagccccctc  | ctggccccctg | tcattcttctg | 540  |
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| tggccaagac | ctgccctgtg  | cagctgtggg  | ttgattccac  | acccccgccc  | ggcaccgcg   | 720  |
| tccgcgcat  | ggccatctac  | aagcagtcac  | agcacatgac  | ggagggttg   | aggcgtgccc  | 780  |
| cccaccatga | gcgctgctca  | gatagcgatg  | gtctggcccc  | tcctcagcat  | cttatccgag  | 840  |
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| tggaagactc | cagtggtaat  | ctactgggac  | ggaacagctt  | tgagggtcgt  | gtttgtgcct  | 1080 |
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| tctctaactt | caaggcccat  | atctgtgaaa  | tgctggcatt  | tgacacctacc | tcacagagtg  | 1860 |
| cattgtgagg | gttaatgaaa  | taatgtacat  | ctggccttga  | aaccaccttt  | tattacatgg  | 1920 |
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| gggttggtag | tttctacagt  | tgggcagctg  | gttaggtaga  | gggagttgtc  | aagtcttgct  | 2040 |
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| ccagagtgtc | gggattacaa  | ttgtgagcca  | ccacgtggag  | ctggaagggt  | caacatcttt  | 2520 |
| tacattctgc | aagcacatct  | gcattttcac  | cccacccttc  | ccctccttct  | ccctttttat  | 2580 |
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&lt;210&gt; 60

&lt;211&gt; 2629

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 60

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| gggagcgtgc | tttccacgac | ggtgacacgc  | ttccctggat | tggcagccag  | actgccttcc  | 240 |
| gggtcactgc | catggaggag | ccgcagtcag  | atcctagcgt | cgagccccct  | ctgagtcagg  | 300 |
| aaacattttc | agacctatgg | aaactacttc  | ctgaaaacaa | cgttctgtcc  | cccttgccgt  | 360 |
| cccaagcaat | ggatgatttg | atgctgtcct  | cggacgatat | tgaacaatgg  | ttcactgaag  | 420 |
| acccaggctc | agatgaagct | cccagaatgc  | cagaggctgc | tcccccgctg  | gccccctgcac | 480 |
| cagcagctcc | tacaccggcg | gccccctgcac | cagccccctc | ctggccccctg | tcattcttctg | 540 |

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| tggccaagac | ctgccctgtg  | cagctgtggg | ttgattccac  | acccccgcc  | ggcaccgcg  | 720  |
| tccgcgccat | ggccatctac  | aagcagtcac | agcacatgac  | ggaggttgtg | aggcgtgcc  | 780  |
| cccaccatga | gcgtgctca   | gatagcgatg | gtctggcccc  | tcctcagcat | cttatccgag | 840  |
| tggaaggaaa | tttgctgtg   | gagtatttgg | atgacagaaa  | cacttttcga | catagtgtgg | 900  |
| tggcgcccta | tgagccgcct  | gaggttggct | ctgactgtac  | caccatccac | tacaactaca | 960  |
| tgtgtaacag | ttcctgcatg  | ggcggcatga | accggaggcc  | catcctcacc | atcatcacac | 1020 |
| tggaagactc | cagtggtaat  | ctactgggac | ggaacagctt  | tgaggtgcgt | gtttgtgcct | 1080 |
| gtcctgggag | agaccggcgc  | acagaggaag | agaatctccg  | caagaaagg  | gagcctcacc | 1140 |
| acgagctgcc | cccaggggagc | actaagcgag | cactgcccac  | caacaccagc | tcctctcccc | 1200 |
| agccaaagaa | gaaaccactg  | gatggagaat | atttcaccct  | tcagatccgt | gggctgagc  | 1260 |
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| tctctaactt | caaggcccat  | atctgtgaaa | tgctggcatt  | tgacactacc | tcacagagtg | 1860 |
| cattgtgagg | gttaatgaaa  | taatgtacat | ctggccttga  | aaccaccttt | tattacatgg | 1920 |
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| gggttggtag | tttctacagt  | tgggcagctg | ggttgataga  | gggagttgtc | aagtcttgct | 2040 |
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| caccccatcc | cacaccctgg  | aggatttcat | ctcttgata   | tgatgatctg | gatccaccaa | 2160 |
| gacttgtttt | atgctcaggg  | tcaatttctt | ttttcttttt  | tttttttttt | tttctttttc | 2220 |
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| tacaggttca | tgccaccatg  | gccagccaac | ttttgcatgt  | ttttagagag | tggggtctca | 2400 |
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| cagagtgtct | gggattacaa  | ttgtgagcca | ccacgtggag  | ctggaagggt | caacatcttt | 2520 |
| tacattctgc | aagcacatct  | gcattttcac | cccacccttc  | ccctcttctt | ccctttttat | 2580 |
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|------------|-------------|------------|-------------|-------------|-------------|------|
| acttgtcatg | gcgactgtcc  | agctttgtgc | caggagcctc  | gcaggggttg  | atgggattgg  | 60   |
| ggttttcccc | tcccatgtgc  | tcaagactgg | cgctaaaagt  | tttgagcttc  | tcaaaagtct  | 120  |
| agagccaccg | tccaggggagc | aggtagctgc | tgggctccgg  | ggacactttg  | cgttcgggct  | 180  |
| gggagcgtgc | tttccacgac  | ggtgacacgc | ttccctggat  | tggcagccag  | actgccttcc  | 240  |
| gggtcactgc | catggaggag  | ccgcagtcag | atcctagcgt  | cgagccccct  | ctgagtcagg  | 300  |
| aaacattttc | agacctatgg  | aaactacttc | ctgaaaacaa  | cgttctgtcc  | cccttgccgt  | 360  |
| cccaagcaat | ggatgatttg  | atgctgtcct | cggacgatat  | tgaacaatgg  | ttcactgaag  | 420  |
| acccaggtcc | agatgaagct  | cccagaatgc | cagaggctgc  | tccccccgtg  | gccccgtcac  | 480  |
| cagcagctcc | tacaccggcg  | gcccctgcac | cagccccctc  | ctggccccctg | tcacttctctg | 540  |
| tccttcccca | gaaaacctac  | cagggcagct | acgggtttccg | tctgggcttc  | ttgcattctg  | 600  |
| ggacagccaa | gtctgtgact  | tgcacgtact | cccctgccct  | caacaagatg  | ttttgccaac  | 660  |
| tggccaagac | ctgccctgtg  | cagctgtggg | ttgattccac  | acccccgcc   | ggcaccgcg   | 720  |
| tccgcgccat | ggccatctac  | aagcagtcac | agcacatgac  | ggaggttgtg  | aggcgtgcc   | 780  |
| cccaccatga | gcgtgctca   | gatagcgatg | gtctggcccc  | tcctcagcat  | cttatccgag  | 840  |
| tggaaggaaa | tttgctgtg   | gagtatttgg | atgacagaaa  | cacttttcga  | catagtgtgg  | 900  |
| tggcgcccta | tgagccgcct  | gaggttggct | ctgactgtac  | caccatccac  | tacaactaca  | 960  |
| tgtgtaacag | ttcctgcatg  | ggcggcatga | accggaggcc  | catcctcacc  | atcatcacac  | 1020 |
| tggaagactc | cagtggtaat  | ctactgggac | ggaacagctt  | tgaggtgcgt  | gtttgtgcct  | 1080 |
| gtcctgggag | agaccggcgc  | acagaggaag | agaatctccg  | caagaaagg   | gagcctcacc  | 1140 |
| acgagctgcc | cccaggggagc | actaagcgag | cactgcccac  | caacaccagc  | tcctctcccc  | 1200 |



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|             |             |            |            |            |             |      |
|-------------|-------------|------------|------------|------------|-------------|------|
| agccaaagaa  | gaaaccactg  | gatggagaat | atttcaccct | tcagatccgt | gggcgtgagc  | 1260 |
| gcttcgagat  | gttccgagag  | ctgaatgagg | ccttggaact | caaggatgcc | caggctggga  | 1320 |
| aggagccagg  | ggggagcagg  | gctcactcca | gccacctgaa | gtccaaaaag | ggtcagtcta  | 1380 |
| cctcccgcga  | taaaaaactc  | atgttcaaga | cagaagggcc | tgactcagac | tgacattctc  | 1440 |
| cacttcttgt  | tccccactga  | cagcctccca | cccccatctc | tccctcccct | gccattttgg  | 1500 |
| gttttgggtc  | tttgaaccct  | tgcttgcaat | aggtgtgcgt | cagaagcacc | caggacttcc  | 1560 |
| atttgctttg  | tcccggggct  | ccactgaaca | agttggcctg | cactgggtgt | ttgttgtggg  | 1620 |
| gaggaggatg  | gggagtagga  | cataccagct | tagattttta | ggtttttact | gtgagggatg  | 1680 |
| tttgggagat  | gtaagaaatg  | ttcttgcaat | taagggttag | tttacaatca | gccacattct  | 1740 |
| aggtaggtag  | gggcccactt  | caccgtacta | accagggaag | ctgtccctca | tgttgaattt  | 1800 |
| tctctaactt  | caaggcccat  | atctgtgaaa | tgctggcatt | tgacacctac | tcacagagtg  | 1860 |
| cattgtgagg  | gttaatgaaa  | taatgtacat | ctggccttga | aaccaccttt | tattacatgg  | 1920 |
| gggtctaaaac | ttgacccccct | tgagggtgcc | tgttccctct | ccctctccct | gttggtgtgt  | 1980 |
| gggtttggtag | tttctacagt  | tgggcagctg | gttaggtaga | gggagttgtc | aagtcttgct  | 2040 |
| ggcccagcca  | aaccctgtct  | gacaacctct | tggtcgacct | tagtacctaa | aaggaaatct  | 2100 |
| cacccccatcc | cacaccctgg  | aggatttcat | ctcttgtata | tgatgatctg | gatccaccaa  | 2160 |
| gacttgtttt  | atgctcaggg  | tcaatttctt | ttttcttttt | tttttttttt | tttctttttc  | 2220 |
| tttgagactg  | ggtctcgctt  | tgttgcccag | gctggagttg | agtggcgtga | tcttggctta  | 2280 |
| ctgcagcctt  | tgcttccccg  | gctcgagcag | tcctgcctca | gcctccggag | tagctgggac  | 2340 |
| cacaggttca  | tgccaccatg  | gccagccaac | ttttgcatgt | tttgtagaga | tgggggtctca | 2400 |
| cagtgttgcc  | caggctggtc  | tcaaactcct | gggtcaggcc | gatccacctg | tctcagcctc  | 2460 |
| ccagagtgtc  | gggattacaa  | ttgtgagcca | ccacgtggag | ctggaagggt | caacatcttt  | 2520 |
| tacattctgc  | aagcacatct  | gcattttcac | cccacccttc | ccctccttct | ccctttttat  | 2580 |
| atccccattt  | tatatcgatc  | tcttatttta | caataaaact | ttgctgcca  |             | 2629 |

&lt;210&gt; 62

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 62

|             |            |             |             |             |             |      |
|-------------|------------|-------------|-------------|-------------|-------------|------|
| atggaagaac  | cacagtcaga | tcctagcgct  | gaaccacctc  | tgagtcagga  | aaccttttca  | 60   |
| gacctgtgga  | aattgcttcc | tgaaaacaac  | gttctgtccc  | cattgcctag  | tcaagcaatg  | 120  |
| gatgatttga  | tgctgtcccc | agacgatatt  | gaacaatggg  | tcaactgaaga | tccaggccca  | 180  |
| gatgaagctc  | cacgaatgcc | agaggccgct  | ccacgcgttg  | ccccagcacc  | agcagctcct  | 240  |
| acaccggcgg  | ccccagctcc | ggccccatcc  | tggtcctctgt | catcttctgt  | cccttcccag  | 300  |
| aaaaacctacc | agggcagcta | cgggtttccgt | ctgggcttct  | tgcatctctg  | aactgccaaag | 360  |
| tctgttactt  | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact  | cgcgaagacc  | 420  |
| tgcccagttc  | aactgtgggt | gaactccacc  | cctccacctg  | gtacacgtgt  | ccgcgcaatg  | 480  |
| gccatctaca  | agcagagcca | gcacatgacg  | gaggctgtac  | gacgctgtcc  | acaccatgag  | 540  |
| cgctgctcag  | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt  | ggaaggtaac  | 600  |
| ctacgcgtgg  | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggg  | ggtgccatat  | 660  |
| gagccaccag  | aagttggctc | tgactgcacc  | accatccact  | acaactatat  | gtgtaacagt  | 720  |
| tcatgcatgg  | gcggcatgaa | ccggcggccg  | atcctgacca  | tcatcactct  | cgaggattcc  | 780  |
| tcaggtaatc  | tcctaggagc | gaatttcctt  | gagggtcgctg | tttgtgcatg  | cccgggccgc  | 840  |
| gatcgccgga  | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca  | cgagctgcca  | 900  |
| ccaggaagca  | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca  | gccaaagaag  | 960  |
| aaacctttgg  | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg  | gttcgagatg  | 1020 |
| ttccgagagc  | tgaatgaggc | cttagaactt  | aaggatgcc   | aggctggtaa  | ggagccagga  | 1080 |
| ggcagccgtg  | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagtctac  | ctcccgccat  | 1140 |
| aaaaaaactga | tgttcaagac | cgaaggctct  | gactcagact  | ga          |             | 1182 |

&lt;210&gt; 63

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 63

|            |            |             |             |             |             |      |
|------------|------------|-------------|-------------|-------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgctc | gaaccacctc  | tgagtcagga  | aaccttttca  | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac  | gttctgtccc  | cattgcctag  | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcctc | ggacgatatt  | gaacaatggg  | tcactgaaga  | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccacgcgttg  | ccccagcacc  | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc  | tggcctctgt  | catcttctgt  | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt  | ctgggcttct  | tgcatctctg  | aactgccaag  | 360  |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact  | cgcaagacc   | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt  | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg  | gaggctgtac  | gacgctgtcc  | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt  | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggt  | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc  | accatccact  | acaactatat  | gtgtaacagt  | 720  |
| tcctgcatgg | gcggcatgaa | ccggcgggccg | atcctgacca  | tcactactct  | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt  | gagggtgcgtg | tttggtgcatg | cccgggcccgc | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca  | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca  | gccaaagaag  | 960  |
| aaaccttttg | acggagaata | tttaccctt   | cagatccgtg  | gccgtgagcg  | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa  | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagtctac  | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggtcct  | gactcagact  | ga          |             | 1182 |

&lt;210&gt; 64

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 64

|            |            |             |             |             |             |      |
|------------|------------|-------------|-------------|-------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgctc | gaaccacctc  | tgagtcagga  | aaccttttca  | 60   |
| gacctgtgga | aattgcttcc | tgaaaacaac  | gttctgtccc  | cattgcctag  | tcaagcaatg  | 120  |
| gatgatttga | tgctgtcctc | ggacgatatt  | gaacaatggg  | tcactgaaga  | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccaccgggtg  | ccccagcacc  | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc  | tggcctctgt  | catcttctgt  | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt  | ctgggcttct  | tgcatctctg  | aactgccaag  | 360  |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact  | cgcaagacc   | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt  | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg  | gaggctgtac  | gacgctgtcc  | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt  | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggt  | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc  | accatccact  | acaactatat  | gtgtaacagt  | 720  |
| tcctgcatgg | gcggcatgaa | ccggcgggccg | atcctgacca  | tcactactct  | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt  | gagggtgcgtg | tttggtgcatg | cccgggcccgc | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca  | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca  | gccaaagaag  | 960  |
| aaaccttttg | acggagaata | tttaccctt   | cagatccgtg  | gccgtgagcg  | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa  | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagtctac  | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggtcct  | gactcagact  | ga          |             | 1182 |

&lt;210&gt; 65

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 65

|            |            |             |            |            |            |     |
|------------|------------|-------------|------------|------------|------------|-----|
| atggaagaac | cacagtcaga | tcctagcgctc | gaaccacccc | tgagtcagga | aaccttttca | 60  |
| gatctgtgga | agcttcttcc | tgaaaacaac  | gttctgtccc | cattgcctag | tcaagcaatg | 120 |

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|            |            |            |             |            |             |      |
|------------|------------|------------|-------------|------------|-------------|------|
| gatgatttga | tgctgagccc | agacgatatt | gaacaatggt  | tcactgagga | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct | ccacgcgttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt | ctgggcttct  | tgcattctgg | aactgccaaag | 360  |
| tctgttactt | gtacgtactc | tccagccctt | aacaagatgt  | tttgccaact | cgcgaagacc  | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg | gaggtcgtac  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac | acttttcgac  | acagtgtggg | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcggccg | atcctgacca  | tcatactct  | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt | gaggtgcgtg  | tttgtgcatg | cccgggccgc  | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct | gactcagact  | ga         |             | 1182 |

&lt;210&gt; 66

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 66

|            |            |             |             |            |             |      |
|------------|------------|-------------|-------------|------------|-------------|------|
| atggaagaac | cacagtcaga | tcctagcgctc | gaaccacccc  | tgagtcagga | aaccttttca  | 60   |
| gatctgtgga | agcttcttcc | tgaaaacaac  | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga | tgctgagctc | ggacgatatt  | gaacaatggt  | tcactgagga | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccacgcgttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc  | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta | cggtttccgt  | ctgggcttct  | tgcattctgg | aactgccaaag | 360  |
| tctgttactt | gtacgtactc | tccagccctt  | aacaagatgt  | tttgccaact | cgcgaagacc  | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc  | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca | gcacatgacg  | gaggtcgtac  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg | tctggcgcca  | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac  | acttttcgac  | acagtgtggg | ggtgccatat  | 660  |
| gagccaccag | aagttggctc | tgactgcacc  | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa | ccggcggccg  | atcctgacca  | tcatactct  | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt  | gaggtgcgtg  | tttgtgcatg | cccgggccgc  | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg  | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac  | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg | acggagaata | tttcaccctt  | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt  | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag | ccacctgaag  | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac | cgaaggctct  | gactcagact  | ga         |             | 1182 |

&lt;210&gt; 67

&lt;211&gt; 1182

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 67

|            |            |             |            |            |            |     |
|------------|------------|-------------|------------|------------|------------|-----|
| atggaagaac | cacagtcaga | tcctagcgctc | gaaccacccc | tgagtcagga | aaccttttca | 60  |
| gatctgtgga | agcttcttcc | tgaaaacaac  | gttctgtccc | cattgcctag | tcaagcaatg | 120 |
| gatgatttga | tgctgagctc | ggacgatatt  | gaacaatggt | tcactgagga | tccaggccca | 180 |

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|            |             |             |             |            |             |      |
|------------|-------------|-------------|-------------|------------|-------------|------|
| gatgaagctc | cacgaatgcc  | agaggccgct  | ccaccggttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc  | ggccccatcc  | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta  | cgggtttccgt | ctgggcttct  | tgcattctgg | aactgccaag  | 360  |
| tctgttactt | gtacgtactc  | tccagccctt  | aacaagatgt  | tttgccaact | cgcggaagacc | 420  |
| tgcccagttc | aactgtgggt  | cgactccacc  | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca  | gcacatgacg  | gaggtcgtac  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg  | tctggcgcca  | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga  | tgaccgcaac  | acttttcgac  | acagtgtggg | ggtgccatat  | 660  |
| gagccaccag | aagtgtggctc | tgactgcacc  | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa  | ccggcgggccg | atcctgacca  | tcatcactct | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg  | gaattccttt  | gaggtgctgt  | tttgtgcatg | cccggggccgc | 840  |
| gatcgccgga | ccgaagagga  | gaatctccgg  | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc  | actgccaaac  | aacaccagca  | gttctccaca | gccaaagaag  | 960  |
| aaacctttgg | acggagaata  | tttcaccctt  | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc  | cttagaactt  | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccgtg | ctcatagcag  | ccacctgaag  | tccaaaaagg  | gtcagtctac | ctcccgccat  | 1140 |
| aaaaaactga | tgttcaagac  | cgaaggctct  | gactcagact  | ga         |             | 1182 |

<210> 68

<211> 1181

<212> DNA

<213> Artificial Sequence

<220>

<223> Produced by genetic engineering

<400> 68

|            |             |             |             |            |             |      |
|------------|-------------|-------------|-------------|------------|-------------|------|
| atggaagaac | cacagtcaga  | tcctagcgct  | gaaccacccc  | tgagtcagga | aaccttttca  | 60   |
| gatctgtgga | agcttcttcc  | tgaaaacaac  | gttctgtccc  | cattgcctag | tcaagcaatg  | 120  |
| gatgatttga | tgctgagccc  | agacgatatt  | gaacaatggt  | tactgagga  | tccaggccca  | 180  |
| gatgaagctc | cacgaatgcc  | agaggccgct  | ccacgcgttg  | ccccagcacc | agcagctcct  | 240  |
| acaccggcgg | ccccagctcc  | ggccccatcc  | tggcctctgt  | catcttctgt | cccttcccag  | 300  |
| aaaacctacc | agggcagcta  | cgggtttccgt | ctgggcttct  | tgcattctgg | aactgccaag  | 360  |
| tctgttactt | gtacgtactc  | tccagccctt  | aacaagatgt  | tttgccaact | cgcggaagacc | 420  |
| tgcccagttc | aactgtgggt  | cgactccacc  | cctccacctg  | gtacacgtgt | ccgcgcaatg  | 480  |
| gccatctaca | agcagagcca  | gcacatgacg  | gaggtcgtac  | gacgctgtcc | acaccatgag  | 540  |
| cgctgctcag | attctgatgg  | tctggcgcca  | ccacagcatc  | ttatccgagt | ggaaggtaac  | 600  |
| ctacgcgtgg | agtatctaga  | tgaccgcaac  | acttttcgac  | acagtgtggg | ggtgccatat  | 660  |
| gagccaccag | aagtgtggctc | tgactgcacc  | accatccact  | acaactatat | gtgtaacagt  | 720  |
| tcatgcatgg | gcggcatgaa  | ccggcgggccg | atcctgacca  | tcatcactct | cgaggattcc  | 780  |
| tcaggtaatc | tcctaggacg  | gaattccttt  | gaggtgctgt  | tttgtgcatg | cccggggccgc | 840  |
| gatcgccgga | ccgaagagga  | gaatctccgg  | aagaaagggtg | agcctcacca | cgagctgcca  | 900  |
| ccaggaagca | ctaagcgagc  | actgccaaac  | aacacgagct  | cttctccaca | gccaaagaag  | 960  |
| aaacctttgg | acggagaata  | tttcaccctg  | cagatccgtg  | gccgtgagcg | gttcgagatg  | 1020 |
| ttccgagagc | tgaatgaggc  | cttagaactt  | aaggatgccc  | aggctggtaa | ggagccagga  | 1080 |
| ggcagccggg | cccattcgtc  | tcacctgaag  | tccaaaaagg  | gtcagtctac | tagtcgccat  | 1140 |
| aaaaaactga | gttcaagacc  | gaaggctcctg | actcagactg  | a          |             | 1181 |

<210> 69

<211> 1181

<212> DNA

<213> Artificial Sequence

<220>

<223> Produced by genetic engineering

<400> 69

|            |            |             |            |            |            |     |
|------------|------------|-------------|------------|------------|------------|-----|
| atggaagaac | cacagtcaga | tcctagcgct  | gaaccacccc | tgagtcagga | aaccttttca | 60  |
| gatctgtgga | agcttcttcc | tgaaaacaac  | gttctgtccc | cattgcctag | tcaagcaatg | 120 |
| gatgatttga | tgctgagctc | ggacgatatt  | gaacaatggt | tactgagga  | tccaggccca | 180 |
| gatgaagctc | cacgaatgcc | agaggccgct  | ccacgcgttg | ccccagcacc | agcagctcct | 240 |
| acaccggcgg | ccccagctcc | ggccccatcc  | tggcctctgt | catcttctgt | cccttcccag | 300 |
| aaaacctacc | agggcagcta | cgggtttccgt | ctgggcttct | tgcattctgg | aactgccaag | 360 |

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|            |            |            |            |            |            |      |
|------------|------------|------------|------------|------------|------------|------|
| tctgttactt | gtacgtactc | tccagccctt | aacaagatgt | tttgccaact | cgccaagacc | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc | cctccacctg | gtacacgtgt | ccgcgcaatg | 480  |
| gccatctaca | agcagagcca | gcacatgacg | gaggtcgtac | gacgctgtcc | acaccatgag | 540  |
| cgctgctcag | attctgatgg | tctggcgcca | ccacagcatc | ttatccgagt | ggaaggtaac | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac | acttttcgac | acagtgtggt | ggtgccatat | 660  |
| gagccaccag | aagttggctc | tgactgcacc | accatccact | acaactatat | gtgtaacagt | 720  |
| tcattgcatg | gcggcatgaa | ccggcgggcg | atcctgacca | tcatactct  | cgaggattcc | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt | gaggtgcgtg | tttgtgcatg | ccggggccgc | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg | aagaaagggt | agcctcacca | cgagctgcca | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac | aacacgagct | cttctccaca | gccaaagaag | 960  |
| aaacctttgg | acggagaata | tttcaccctg | cagatccgtg | gccgtgagcg | gttcgagatg | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt | aaggatgccc | aggctggtaa | ggagccagga | 1080 |
| ggcagccggg | cccattcgtc | tcacctgaag | tccaaaaagg | gtcagtctac | tagtcgccat | 1140 |
| aaaaaactga | gttcaagacc | gaaggctctg | actcagactg | a          |            | 1181 |

&lt;210&gt; 70

&lt;211&gt; 1181

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Produced by genetic engineering

&lt;400&gt; 70

|            |            |            |            |            |            |      |
|------------|------------|------------|------------|------------|------------|------|
| atggaagaac | cacagtcaga | tcctagcgtc | gaaccacccc | tgagtcagga | aaccttttca | 60   |
| gatctgtgga | agcttcttcc | tgaaaacaac | gttctgtccc | cattgcctag | tcaagcaatg | 120  |
| gatgatttga | tgctgagccc | agacgatatt | gaacaatggt | tcactgagga | tccaggccca | 180  |
| gatgaagctc | cacgaatgcc | agaggccgct | ccacgcgttg | ccccagcacc | agcagctcct | 240  |
| acaccggcgg | ccccagctcc | ggccccatcc | tgccctctgt | catcttctgt | cccttcccag | 300  |
| aaaacctacc | agggcagcta | cggtttccgt | ctgggcttct | tgcatcttgg | aactgccaag | 360  |
| tctgttactt | gtacgtactc | tccagccctt | aacaagatgt | tttgccaact | cgccaagacc | 420  |
| tgcccagtc  | aactgtgggt | cgactccacc | cctccacctg | gtacacgtgt | ccgcgcaatg | 480  |
| gccatctaca | agcagagcca | gcacatgacg | gaggtcgtac | gacgctgtcc | acaccatgag | 540  |
| cgctgctcag | attctgatgg | tctggcgcca | ccacagcatc | ttatccgagt | ggaaggtaac | 600  |
| ctacgcgtgg | agtatctaga | tgaccgcaac | acttttcgac | acagtgtggt | ggtgccatat | 660  |
| gagccaccag | aagttggctc | tgactgcacc | accatccact | acaactatat | gtgtaacagt | 720  |
| tcattgcatg | gcggcatgaa | ccggcgggcg | atcctgacca | tcatactct  | cgaggattcc | 780  |
| tcaggtaatc | tcctaggacg | gaattccttt | gaggtgcgtg | tttgtgcatg | ccggggccgc | 840  |
| gatcgccgga | ccgaagagga | gaatctccgg | aagaaagggt | agcctcacca | cgagctgcca | 900  |
| ccaggaagca | ctaagcgagc | actgccaaac | aacacgagct | cttctccaca | gccaaagaag | 960  |
| aaacctttgg | acggagaata | tttcaccctg | cagatccgtg | gccgtgagcg | gttcgagatg | 1020 |
| ttccgagagc | tgaatgaggc | cttagaactt | aaggatgccc | aggctggtaa | ggagccagga | 1080 |
| ggcagccggg | cccattcgtc | tcacctgaag | tccaaaaagg | gtcagtctac | tagtcgccat | 1140 |
| aaaaaactga | gttcaagacc | gaaggctctg | actcagactg | a          |            | 1181 |

&lt;210&gt; 71

&lt;211&gt; 1179

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)...(1179)

&lt;221&gt; misc\_feature

&lt;222&gt; (1)...(1179)

&lt;223&gt; n = A,T,C or G

&lt;400&gt; 71

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| atg | gar | gar | ccn | car | nnn | gay | ccn | nnn | gtn | gar | ccn | ccn | ytg | nnn | car | 48 |
| Met | Glu | Glu | Pro | Gln | Ser | Asp | Pro | Ser | Val | Glu | Pro | Pro | Leu | Ser | Gln |    |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |    |

## 433480\_1

|                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |            |                   |     |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------|-------------------|-----|
| gar<br>Glu        | acn<br>Thr        | tty<br>Phe        | nnn<br>Ser<br>20  | gay<br>Asp        | ytn<br>Leu        | tgg<br>Trp        | aar<br>Lys        | ytn<br>Leu<br>25  | ytn<br>Leu        | ccn<br>Pro        | gar<br>Glu        | aay<br>Asn        | aay<br>Asn<br>30  | gtn<br>Val | ytn<br>Leu        | 96  |
| nnn<br>Ser        | ccn<br>Pro        | ytn<br>Leu<br>35  | ccn<br>Pro        | nnn<br>Ser        | car<br>Gln        | gcn<br>Ala        | atg<br>Met<br>40  | gay<br>Asp        | gay<br>Asp        | ytn<br>Leu        | atg<br>Met<br>45  | ytn<br>Leu        | nnn<br>Ser        | ccn<br>Pro | gay<br>Asp        | 144 |
| gay<br>Asp        | ath<br>Ile<br>50  | gar<br>Glu        | car<br>Gln        | tgg<br>Trp        | tty<br>Phe        | acn<br>Thr<br>55  | gar<br>Glu        | gay<br>Asp        | ccn<br>Pro        | ggn<br>Gly        | ccn<br>Pro<br>60  | gay<br>Asp        | gar<br>Glu        | gcn<br>Ala | ccn<br>Pro        | 192 |
| nnn<br>Arg<br>65  | atg<br>Met        | ccn<br>Pro        | gar<br>Glu        | gcn<br>Ala        | gcn<br>Ala<br>70  | ccn<br>Pro        | ccn<br>Pro        | gtn<br>Val        | gcn<br>Ala        | ccn<br>Pro<br>75  | gcn<br>Ala        | ccn<br>Pro        | gcn<br>Ala        | gcn<br>Ala | ccn<br>Pro<br>80  | 240 |
| acn<br>Thr        | ccn<br>Pro        | gcn<br>Ala        | gcn<br>Ala        | ccn<br>Pro<br>85  | gcn<br>Ala        | ccn<br>Pro        | gcn<br>Ala        | ccn<br>Pro        | nnn<br>Ser<br>90  | tgg<br>Trp        | ccn<br>Pro        | ytn<br>Leu        | nnn<br>Ser<br>95  | nnn<br>Ser | nnn<br>Ser        | 288 |
| gtn<br>Val        | ccn<br>Pro        | nnn<br>Ser        | car<br>Gln<br>100 | aar<br>Lys        | acn<br>Thr        | tay<br>Tyr        | car<br>Gln        | ggn<br>Gly<br>105 | nnn<br>Ser        | tay<br>Tyr        | ggn<br>Gly        | tty<br>Phe        | nnn<br>Arg<br>110 | ytn<br>Leu | ggn<br>Gly        | 336 |
| tty<br>Phe        | ytn<br>Leu        | cay<br>His<br>115 | nnn<br>Ser        | ggn<br>Gly        | acn<br>Thr        | gcn<br>Ala        | aar<br>Lys<br>120 | nnn<br>Ser        | gtn<br>Val        | acn<br>Thr        | tgy<br>Cys<br>125 | acn<br>Thr        | tay<br>Tyr        | nnn<br>Ser | ccn<br>Pro        | 384 |
| gcn<br>Ala        | ytn<br>Leu<br>130 | aay<br>Asn        | aar<br>Lys        | atg<br>Met        | tty<br>Phe        | tgy<br>Cys<br>135 | car<br>Gln        | ytn<br>Leu        | gcn<br>Ala        | aar<br>Lys        | acn<br>Thr<br>140 | tgy<br>Cys        | ccn<br>Pro        | gtn<br>Val | car<br>Gln        | 432 |
| ytn<br>Leu<br>145 | tgg<br>Trp        | gtn<br>Val        | gay<br>Asp        | nnn<br>Ser        | acn<br>Thr<br>150 | ccn<br>Pro        | ccn<br>Pro        | ccn<br>Pro        | ggn<br>Gly        | acn<br>Thr<br>155 | nnn<br>Arg        | gtn<br>Val        | nnn<br>Arg        | gcn<br>Ala | atg<br>Met<br>160 | 480 |
| gcn<br>Ala        | ath<br>Ile        | tay<br>Tyr        | aar<br>Lys        | car<br>Gln<br>165 | nnn<br>Ser        | car<br>Gln        | cay<br>His        | atg<br>Met        | acn<br>Thr<br>170 | gar<br>Glu        | gtn<br>Val        | gtn<br>Val        | nnn<br>Arg        | nnn<br>Arg | tgy<br>Cys<br>175 | 528 |
| ccn<br>Pro        | cay<br>His        | cay<br>His        | gar<br>Glu<br>180 | nnn<br>Arg        | tgy<br>Cys        | nnn<br>Ser        | gay<br>Asp        | nnn<br>Ser<br>185 | gay<br>Asp        | ggn<br>Gly        | ytn<br>Leu        | gcn<br>Ala        | ccn<br>Pro<br>190 | ccn<br>Pro | car<br>Gln        | 576 |
| cay<br>His        | ytn<br>Leu        | ath<br>Ile<br>195 | nnn<br>Arg        | gtn<br>Val        | gar<br>Glu        | ggn<br>Gly        | aay<br>Asn<br>200 | ytn<br>Leu        | nnn<br>Arg        | gtn<br>Val        | gar<br>Glu        | tay<br>Tyr<br>205 | ytn<br>Leu        | gay<br>Asp | gay<br>Asp        | 624 |
| nnn<br>Arg<br>210 | aay<br>Asn        | acn<br>Thr        | tty<br>Phe        | nnn<br>Arg        | cay<br>His        | nnn<br>Ser<br>215 | gtn<br>Val        | gtn<br>Val        | gtn<br>Val        | ccn<br>Pro        | tay<br>Tyr<br>220 | gar<br>Glu        | ccn<br>Pro        | ccn<br>Pro | gar<br>Glu        | 672 |
| gtn<br>Val<br>225 | ggn<br>Gly        | nnn<br>Ser        | gay<br>Asp        | tgy<br>Cys        | acn<br>Thr<br>230 | acn<br>Thr        | ath<br>Ile        | cay<br>His        | tay<br>Tyr        | aay<br>Asn<br>235 | tay<br>Tyr        | atg<br>Met        | tgy<br>Cys        | aay<br>Asn | nnn<br>Ser<br>240 | 720 |
| nnn<br>Ser        | tgy<br>Cys        | atg<br>Met        | ggn<br>Gly<br>245 | ggn<br>Gly        | atg<br>Met        | aay<br>Asn        | nnn<br>Arg        | nnn<br>Arg        | ccn<br>Pro<br>250 | ath<br>Ile        | ytn<br>Leu        | acn<br>Thr        | ath<br>Ile<br>255 | ath<br>Ile | acn<br>Thr        | 768 |
| ytn<br>Leu        | gar<br>Glu        | gay<br>Asp        | nnn<br>Ser<br>260 | nnn<br>Ser        | ggn<br>Gly        | aay<br>Asn        | ytn<br>Leu<br>265 | ytn<br>Leu        | ggn<br>Gly        | nnn<br>Arg        | aay<br>Asn        | nnn<br>Ser        | tty<br>Phe<br>270 | gar<br>Glu | gtn<br>Val        | 816 |

## 433480\_1

|   |      |
|---|------|
| nnn gtn tgy gcn tgy ccn ggn nnn gay nnn nnn acn gar gar gar aay | 864  |
| Arg Val Cys Ala Cys Pro Gly Arg Asp Arg Arg Thr Glu Glu Glu Asn |      |
| 275 280 285   |      |
| ytn nnn aar aar ggn gar ccn cay cay gar ytn ccn ccn ggn nnn acn | 912  |
| Leu Arg Lys Lys Gly Glu Pro His His Glu Leu Pro Pro Gly Ser Thr |      |
| 290 295 300   |      |
| aar nnn gcn ytn ccn aay aay acn nnn nnn nnn ccn car ccn aar aar | 960  |
| Lys Arg Ala Leu Pro Asn Asn Thr Ser Ser Ser Pro Gln Pro Lys Lys |      |
| 305 310 315 320   |      |
| aar ccn ytn gay ggn gar tay tty acn ytn car ath nnn ggn nnn gar | 1008 |
| Lys Pro Leu Asp Gly Glu Tyr Phe Thr Leu Gln Ile Arg Gly Arg Glu |      |
| 325 330 335   |      |
| nnn tty gar atg tty nnn gar ytn aay gar gcn ytn gar ytn aar gay | 1056 |
| Arg Phe Glu Met Phe Arg Glu Leu Asn Glu Ala Leu Glu Leu Lys Asp |      |
| 340 345 350   |      |
| gcn car gcn ggn aar gar ccn ggn ggn nnn nnn gcn cay nnn nnn cay | 1104 |
| Ala Gln Ala Gly Lys Glu Pro Gly Gly Ser Arg Ala His Ser Ser His |      |
| 355 360 365   |      |
| ytn aar nnn aar aar ggn car nnn acn nnn nnn cay aar aar ytn atg | 1152 |
| Leu Lys Ser Lys Lys Gly Gln Ser Thr Ser Arg His Lys Lys Leu Met |      |
| 370 375 380   |      |
| tty aar acn gar ggn ccn gay nnn gay                             | 1179 |
| Phe Lys Thr Glu Gly Pro Asp Ser Asp                             |      |
| 385 390   |      |